







**BALTIMORE AND SUSQUEHANNA**

Railroad. The Passenger train runs daily except Sunday, as follows:  
 Leaves Baltimore at 9 a.m., and  arrives at 6 1/2 p.m. Arrives at York at 12 1/2 p.m., and leaves for Columbia at 1 1/2 p.m. Leaves Columbia at 2 p.m., and leaves York for Baltimore at 3 p.m. Fare to York \$2. Wrightsville \$2 50, and Columbia \$2 62 1/2. The train connects at York with stages for Harrisburg, Gettysburg, Chambersburg, Pittsburg and York Springs.

Fare to Pittsburg. The company is authorized by the proprietors of Passenger lines on the Pennsylvania improvements, to receive the fare for the whole distance from Baltimore to Pittsburg. Baltimore to Pittsburg.—Fare through, \$9 and \$10.

Afternoon train. This train leaves the ticket office daily, Sundays excepted, at 3 1/2 p.m. for Cockeysville, Parkton, Green Springs, Owings' Mills, etc.



Returning, leaves Parkton at 6 and Cockeysville and Owings' Mills at 7, arriving in Baltimore at 9 o'clock a.m.

Tickets for the round trip to and from any point can be procured from the agents at the ticket offices or from the conductors in the cars. The fare when tickets are thus procured, will be 25 per cent. less, and the tickets will be good for the same and following day any passenger train.

D. C. H. BORDLEY, Supt.  
 Ticket Office, 63 North st.

31 ly

**CENTRAL RAILROAD-FROM SAVANNAH**

to Macon. Distance 190 miles.  
 This Road is open for the transportation of Passengers and  Freight.

Rates of Passage, \$8 00. Freight—On weight goods generally... 50 cts. per hundred. On measurement goods..... 13 cts. per cubic ft. On brls. wet (except molasses and oil).....\$1 50 per barrel.



On brls. dry (except lime)... 80 cts. per barrel. On iron in pigs or bars, castings for mills, and unboxed machinery..... 40 cts. per hundred.

On hhd. and pipes of liquor, not over 120 gallons.....\$5 00 per hhd. On molasses and oil.....\$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE,

40 Gen'l. Supt. Transportation.

**GEORGIA RAILROAD. FROM AUGUSTA**

to ATLANTA—171 MILES.  
 This Road in connection with  the South Carolina Railroad and

the Western and Atlantic Road now forms a continuous line of Railroad of 360 miles from Charleston to Cartersville, two miles west of the Etowa River in Cass County.

Rates of Freight, and Passage from Augusta to Cartersville.

On Boxes of Hats, Bonnets, and Furniture per foot.....15 cts.

" Dry goods, shoes, saddlery etc., per 100 lbs. 85 "

" Sugar, coffee, iron, hardware, etc. " 70 "

" Flour, bacon, mill machinery etc. " 33 1/2 "

" Molasses, per hogshead \$9; salt per bus. . . 22 "

Passengers \$9 50; children under 12 years of age and servants, half price.

Passengers to Atlanta, head of Ga. Railroad, \$7. German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.


Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight payable at Augusta. J. EDGAR THOMPSON,

Ch. Eng. and Gen. Agent.

Augusta, Oct. 21 1845. 44 ly

**LEXINGTON AND OHIO RAILROAD.**

Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.

 Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 23 miles. Fare \$1 25.

On Sunday but one train, 5 o'clock a.m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and 9 a.m. from Frankfort, other hours as above. 35 ly

**WESTERN AND ATLANTIC RAILROAD.**

The Western and Atlantic Railroad is now in operation to Marietta, and will be opened to Cartersville, in Cass county, on the 20th of October—and to Coosa Depot, (formerly known as Borough's,) on the 20th of November.


The passenger train will continue, as at present to connect daily (Sundays excepted) with the train from Augusta, and the stage from Griffin.

CHAS. F. M. GARNETT.

Chief Engineer.

43

**LITTLE MIAMI RAILROAD.—DISTANCE 65 1/2 Miles. Fare, \$1 50.**

From 1st November to 1st March Passenger Trains leave Cincinnati for 

Xenia at 11 o'clock, A.M. Returning, leaves Xenia at 8 1/2 o'clock, A.M.

Freight Trains run daily, Sundays excepted. At Xenia, Passenger Trains connect with daily lines of stages to Columbus, Wheeling, Cleveland and Sandusky city.

W. H. CLEMENT,

Supt. and Engineer.

ly 1

**NICOLL'S PATENT SAFETY SWITCH**

for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee. G. A. NICOLLS,

Reading, Pa.

ja45

**KEARNEY FIRE BRICK. F. W. BRINLEY,**

Manufacturer, Perth Amboy, N. J. Guaranteed equal to any, either domestic or foreign. Any shape or size made to order. Terms, 4 mos. from delivery of brick on board. Refer to

James P. Allaire, Peter Cooper, } New York.

Murdock, Leavitt & Co. } J. Triplett & Son, Richmond, Va.

J. R. Anderson, Tredegar Iron Works, Richmond, Va.

J. Patton, Jr. } Philadelphia, Pa.

Colwell & Co. } J. M. L. & W. H. Scovill, Waterbury, Con.

N. E. Screw Co. } Providence, R. I.

Eagle Screw Co. } William Parker, Supt. Bost. and Worc. R. R.

New Jersey Malleable Iron Co., Newark, N. J.

Gardiner, Harrison & Co. Newark, N. J. 25,000 to 30,000 made weekly. 35 ly

**GEORGE VAIL & CO., SPEEDWELL IRON**

Works, Morristown, Morris Co., N. J.—Manufacturers of Railroad Machinery; Wrought Iron Tires, made from the best iron, either hammered or rolled, from 1 1/2 in. to 2 1/2 in. thick.—bored and turned outside if required. Railroad Companies wishing to order, will please give the exact inside diameter, or circumference, to which they wish the Tires made, and they may rely upon being served according to order, and also punctually, as a large quantity of the straight bar is kept constantly on hand.—

Crank Axles, made from the best refined iron; Straight Axles, for Outside Connection Engines; Wro't. Iron Engine and Truck Frames; Railroad

Jack Screws; Railroad Pumping and Sawing Machines, to be driven by the Locomotive; Stationary Steam Engines; Wro't. Iron work for Steamboats, and Shafting of any size; Grist Mill, Saw Mill and Paper Mill Machinery; Mill Gearing and Mill

Wright work of all kinds; Steam Saw Mills of simple and economical construction, and very effective Iron and Brass Castings of all descriptions. ja45ly

**MACHINE WORKS OF ROGERS,**

Ketchum & Grosvenor, Paterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery

of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR, 45 Paterson, N. J., or 60 Wall street, N. York.

**TO RAILROAD COMPANIES AND MANUFACTURERS**

of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.

THOMAS & EDMUND GEORGE, 45 N. E. cor. 12th and Market sts., Philad., Pa.

**LAWRENCE'S ROSENDALE HYDRAULIC CEMENT.**

This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Floors and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by JOHN W. LAWRENCE, 142 Front street, New York.

Orders for the above will be received and promptly attended to at this office. 32 ly

**THE SUBSCRIBERS, SOLE AGENTS**

for the sale of Codorus, Glendon, Spring Mill, and Valley, } Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay, orders for which are promptly supplied.

SAM'L KIMBER, & CO.,

59 North Wharves,

Jan. 14, 1846. [ly4] Philadelphia, Pa.

**MANUFACTURE OF PATENT WIRE**

Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, Civil Engineer,

Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Ships, on Ferries and in Mines. The first rope put upon Plate No. 3, Portage Railroad, has now run 4 seasons, and is still in good condition. 2v19 ly

**RAILROAD IRON.—THE "MONTGOMERY"**

Iron Company, Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to MURDOCK, LEAVITT & CO., Agents.

Corner of Cedar and Greenwich Sts. 43 ly

**RAILROAD IRON AND LOCOMOTIVE**  
Tyres imported to order and constantly on hand  
by **A. & G. RALSTON**  
Mar. 20th 4 South Front St., Philadelphia.

**THE NEWCASTLE MANUFACTURING**  
Company continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack screws, Wrought iron work and Brass and Iron castings, of all kinds connected with Steamboats, Railroads, etc.; Mill Gearing of every description; Cast wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention.  
**ANDREW C. GRAY,**  
ja45 President of the Newcastle Manuf. Co.

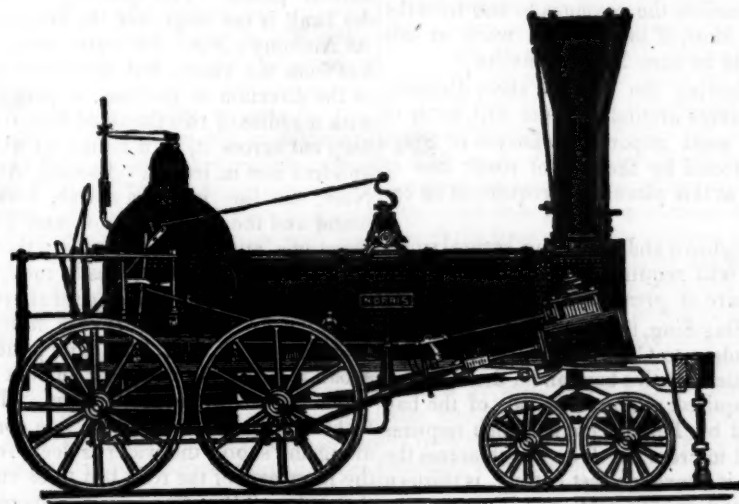
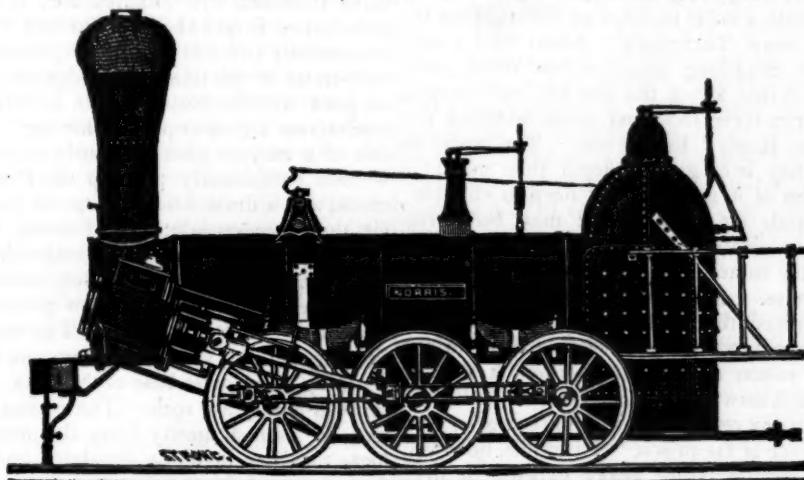
**CUSHMAN'S COMPOUND IRON RAILS.**  
etc. The Subscriber having made important improvements in the construction of rails, mode of guarding against accidents from insecure joints, etc.—respectfully offers to dispose of Company, State Rights, etc., under the privileges of letters patent to Railroad Companies, Iron Founders, and others interested in the works to which the same relate. Companies reconstructing their tracks now have an opportunity of improving their roads on terms very advantageous to the varied interests connected with their construction and operation; roads having to use flat bar rails are particularly interested, as such are permanently available by the plan.

**W. Mc. C. CUSHMAN, Civil Engineer,**  
Albany, N. Y.

Mr. C. also announces that Railroads, and other works pertaining to the profession, may be constructed under his advice or personal supervision. Applications must be post paid.

## NORRIS' LOCOMOTIVE WORKS.

BUSH HILL, PHILADELPHIA, Pennsylvania.



**MANUFACTURE** their Patent 6 Wheel Combined and 8 Wheel Locomotives of the following descriptions, viz:

Class	1,	15 inches Diameter of Cylinder,	× 20 inches Stroke.
"	2,	14	" " " × 24 " "
"	3,	14½	" " " × 20 " "
"	4,	12½	" " " × 20 " "
"	5,	11½	" " " × 20 " "
"	6,	10½	" " " × 18 " "

With Wheels of any dimensions, with their Patent A arrangement for Variable Expansion. Castings of all kinds made to order: and they call attention to their Chilled Wheels for the Trucks of Locomotives, Tenders and Cars

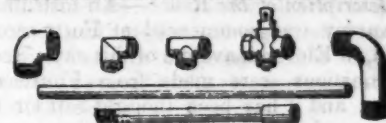
**NORRIS, BROTHERS.**

**TO RAILROAD COMPANIES AND BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.**

### PASCAL IRON WORKS.

#### WELDED WROUGHT IRON TUBES

From 4 inches to 1 in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T, L, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER FLUES.



Manufactured and for sale by  
**MORRIS, TASKER & MORRIS.**  
Warehouse S. E. Corner of Third & Walnut Streets,  
**PHILADELPHIA.**

**RAILROAD IRON.—THE MARYLAND AND NEW YORK IRON AND Coal Company** are now prepared to make contracts for Rails of all kinds. Address the Subscriber, at Jennon's Run, Alleghany County, Maryland.

**WILLIAM YOUNG,**  
President.

**TO IRON MASTERS.—FOR SALE.—MILL SITES** in the immediate neighborhood of *Baltimore* Coal and Iron Ore, of the first quality, at Ralston, Lyoming Co., Pa. This is the nearest point to tide water where such coal and ore are found together, and the communication is complete with Philadelphia and Baltimore by canals and railways. The interest on the cost of water power and lot is all that will be required for many years the coal will not cost more than \$1 to \$1.25 at the mill sites, without any trouble on the part of the manufacturer; rich iron ore may be laid down still more cheaply at the works; and, taken together these sites offer remarkable advantages to practical manufacturers with small capital. For pamphlets, descriptive of the property, and further information, apply to Archibald McIntyre, Albany, to Archibald Robertson, Philadelphia, or to the undersigned, at No. 23 Chambers street, New York, where may be seen specimens of the coal and ore.

**W. R. CASEY, Civil Engineer,**

**VALUABLE PROPERTY ON THE MILL Dam For Sale.** A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 feet, with lathes, work benches, &c.

Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45½ feet two stories high, with a shed part 45½x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x35 feet.

Also—A lot of land on the canal, west side of Parker st., containing 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide

For terms, apply to **HENRY ANDREWS, 48 State st.,** or to **CURTIS, LEAVENS & CO., 106 State st., Boston,** or to **A. & G. RALSTON & Co., Philadelphia.**  
ja45

**CYRUS ALGER & CO., South Boston** etc Company.



*Report on the project of a railroad on the east bank of the Hudson river, from New York to Albany.—New York, January 20, 1846.*

In compliance with instructions from a committee appointed by a convention held at Poughkeepsie in September last, I have examined the route of the projected Hudson river railroad.

**Description of the Route.**—An instrumental survey was commenced at Forty-second street, in Eleventh avenue of this city. Some examinations were made from Fourteenth street; and it has been thought best for the present estimate, to consider the route as starting from the lower end of Hudson street; following that street to its intersection with Fourteenth street; down Fourteenth street to the Eleventh avenue; and thence on this avenue to the point above mentioned, at Forty-second street, where the survey was regularly commenced. The line continues in the Eleventh avenue to Fifty-eighth street, and there diverges to the shore of the Hudson; it then follows the shore, (in the Twelfth avenue, for about one and a half miles,) occasionally cutting off points of projecting land, to the mouth of Harlem creek. Several of the projecting points are rock, the most important of which is that opposite Fort Washington. The shore of the river is generally favorable for an embankment, where it is necessary, between the projecting points, and along the banks that are too steep to admit the work to leave the river. The depth of water, as far out as the embankment will extend, at those places where mostly or entirely in the river, is generally from one to two feet at ebb tide; and in no place exceeds three feet. The loose stone that may be obtained along the shore, out of the earth that will be excavated to form the embankment, and from the rock excavation, will furnish sufficient materials to protect the river side of bank against the wash of the river.

In crossing the bay at the mouth of Harlem creek, a draw bridge will be required to accommodate vessels that pass up the creek a short distance to stone quarries. The channel is shoal, only admitting vessels at high water. The bay is sixteen hundred feet wide, and has from nothing to three feet depth of water at ebb tide. It may be crossed, partly by carrying out an embankment, and partly by a bridge supported on piles.

From Harlem creek the line continues on the shore of the river, in a position similar to that already described, until it reaches Tarrytown. On this portion very little rock occurs; and not sufficient stone is found to make all the protection against the river that will be required. The balance may be obtained from quarries in the vicinity. The river bank is generally less bold than along New York island, and a less amount of embankment will be required. The depth of water at ebb tide, rarely exceeds two feet at the outer base of the embankment. Except where the bank crosses bays between projecting points, the level of the ground at the centre line of road will generally be above high water level. At Yonkers, a draw bridge will be required, for vessels to pass up

Sawmill river; no other bridge will be necessary at this place.

At Tarrytown the line leaves the river, and runs across a point of land that projects too far to pass around. The summit of this point, where the line crosses it, is forty feet above the grade level of the road. The width across it, between points that are eight feet above grade, is thirteen hundred and twenty feet. It appears to be composed of earth that will be easily removed. A considerable portion of the earth from this cut will be required for an embankment across the low ground and marsh above, through which a small stream, called Mill river runs. This stream will require a bridge of thirty feet span. After crossing the marsh, the line passes over a low narrow neck of land, and then regains the river shore, which it follows to near Sing-Sing, much in the same manner and with similar facilities as described for the line below Tarrytown. About half a mile below Sing-Sing prison, a bold rocky point occurs, that forces the line out, and compels it to run three thousand seven hundred feet across Kemys' bay below. The water in this bay is of greater depth than usual; a portion of it is seven feet deep at ebb tide; materials for embankment may be conveniently obtained for a part of the distance, and the balance may be crossed by bridging on piles. After passing the point above mentioned, the line leaves the river, and passes over moderately uneven ground to the state prison at Sing-Sing, where it may go through between the prison and the hill, without, in any respect, injuring the safety or convenience of the prison. To do this, however, will require rather heavy expense in deep earth and rock cutting, in walls and in bridges, to accommodate the passages to and from the prison. Most, if not all, the work at this place could be done by the convicts.

After leaving the prison a short distance, the line curves around near the hill, so as to leave the most important wharves of Sing-Sing unaffected by the line of road; one of the docks at this place will require to be extended.

At Tarrytown and Sing-Sing, several small buildings will require to be removed; none of which are of great value.

From Sing-Sing, the line follows the shore of the Hudson to Croton bay. The Croton river empties into this bay, and a draw bridge will be required. The north side of the bay is bounded by Teller's point, which requires a deep cut to cross it. The length across the point that is above ten feet cutting, is thirteen hundred and eighty feet, and the greatest height above grade is seventy feet. It appears to be composed of sand and gravel of easy excavation, and will be used to a great extent in forming the embankments across the Croton bay on the south, and Collaberg bay on the north. After crossing the latter bay, the line reaches Collaberg village, running in rear of most of the wharves; it continues along the shore of the river for about four miles above Collaberg. This shore is in general more rocky and uneven than that before described below Sing-Sing. Several

brick yards are passed; some of which will require extra expense to provide for their accommodation. At this place it leaves the river, and enters a valley, that requires the grade of the road to rise for two miles, at the rate of thirteen feet per mile, and then descend by a similar grade to the shore of the Hudson, near Peekskill. It then follows the shore of the river, passing through Peekskill between the hill and some of the wharves, and just outside of others. The latter will require to be extended, so that vessels may reach them outside of the railroad.

At Peekskill the Highland section commences. After leaving the village, the line follows the shore of the river nearly half a mile, to a rocky point on the south side of Peekskill creek. Thence it crosses the broad bay at the mouth of this creek, a distance of three thousand five hundred feet, to a bold point called Royer Hook. The bay is shoal—generally two feet (but a few places three feet) water at ebb tide. A bridge supported on piles will be most suitable to carry the road across a greater part of this bay; a portion of it may be advantageously embanked. Vessels occasionally pass up the Peekskill creek, and a draw bridge must be provided for their accommodation. Passing Royer Hook the line continues along the shore of the river, two and a half miles, cutting off some rocky points, to a narrow promontory known as Anthony's Nose. The water is shoal, generally, at ebb tide, from one to two feet deep at the outer base of the bank. This shore is nearly all rock. The embankment will be formed mostly from the masses of loose rock that lie along the shore, and from that excavated from the cuts across several narrow points. The quantity required for the bank is not large, and the line very good. At Anthony's Nose the water is deep a few feet from the shore, but this is not material, as the direction of the line, to pass the nose, with a radius of two thousand feet, requires a deep cut across it, or a tunnel of about four hundred feet in length. Passing Anthony's Nose, the line enters a marsh, between an island and the eastern shore, and follows it about one and a quarter miles; then, crossing a low narrow ridge, mostly rock, it again by a direct line, reaches the river shore, which it follows for three-fourths of a mile. This shore is rocky, not very bold; the water, shoal, requiring a moderate amount of excavation for the grade of the road. The next three-eighths of a mile (the line continuing along the shore) the water is deep, requiring the most part of the road bed to be cut out of the rock. The line along the shore is very direct. The next fourth of a mile the water along the shore is shallow, and the line favorable. The line now leaves the river; cutting through a ridge one thousand feet across, it reaches a valley, which it follows; giving a direct line to West Point bay. The grading is very favorable through this valley until it comes nearly opposite the house of Mr. Phillips, where a deep cut must be made mostly through rock. This is the most formidable cut that is encountered on the route. Its length is one thousand nine hundred and



eighty feet, gradually rising from zero to sixty-two feet deep. A tunnel of five hundred feet will be estimated for, which will so reduce the quantity of rock that the balance may be advantageously used for the bank in the bay above. The bay is shoal water, and is to be crossed partly by an embankment and partly by a bridge on piles. The line then crosses a marsh, and part of Constitution island, to a small bay of shoal water, which it crosses immediately below Cold Spring landing, by a direct line of about two miles. It then passes through the village of Cold Spring, crossing the main street by a cut that admits a bridge over the railroad. From Cold Spring to Breakneck hill, a distance of two miles, nothing of note occurs; the line may be graded at a moderate expense. Breakneck is a short, bold point, and, to secure a good line, must be cut through. It will require a tunnel of five hundred feet in length. It rises abruptly to its summit, requiring no great amount of cutting, to reach the point to be tunnelled. After passing Breakneck hill, there is no serious obstacle to the line to Fishkill landing. It follows along and near the shore, where the water is shallow, and no great amount of rock occurs. The embankments and excavations will, mostly, be earth. It passes inside of Denning Point, and crosses the street leading to the main wharf at Fishkill landing, in a deep cut, that permits a bridge to be carried over the railroad.

Thus far the line has mainly followed the shore of the river. The total distance from Chambers street in New York city, to Fishkill landing, in Dutchess county, is sixty miles and a half.

On the route there are several places where bays are crossed, that will require culverts, or bridges, to allow small boats to pass under the railroad, as well as to provide for the flow of the tide into the bays. These culverts or bridges will provide for the streams that fall into the bays. In general, the estimate will be based on building permanent embankments across the bays, as well as along the margin of the river; protecting them from the wash of the river, partly by a regular wall, and partly by a mass of stone compactly formed on the river side of the bank. The bank to be raised ten feet above ebb tide, as the ordinary grade of the road; an additional height to be given at such points, as, from their exposure to ice, or heavy spray, appear to require it. Across some of the large bays previously noticed, where it is not convenient to obtain materials for embankment, it is proposed to construct the road on a bridge supported by piles, similar in plan (although much less length will be required for the piles) to that used for several railroads at Boston. For the several pieces of marshy ground that have been described, which mostly occur in the Highland district, where materials for embankment will not be convenient, a piled road is also proposed. These places may be easily filled up after the road is completed, and before the piles decay. The piles may be protected from decay, so as to last twenty or thirty years, during which time the embankments may be formed. Culverts will

be required to pass small streams at other places than those provided for in the cases above stated; the plan of these will be common to the whole line.

It has been stated that draw bridges will be required—one at Yonkers, one at Harlem creek, one at Croton river, and one at Peekskill creek. The first will be the most used; probably an average of six times per week; the others probably three times per week during the season of navigation. At this time they would not be used as much.—The plan proposed for the draw bridges, is one of recent adoption on a railroad in the vicinity of Boston, by James Hayward, Esq., civil engineer, which is found to operate very satisfactorily.

In the estimate provision is made for a wide road bed, particularly along the river, that will be sufficient to guard against any danger of running the cars into the river in the event of their being thrown off the track. It may be remarked, however, that railroads in many cases pass along on the banks of large rivers with only common width of roadway, without protection of any kind against such accidents as alluded to above, and they are scarcely noticed as circumstances of peculiar danger. It is nevertheless most prudent to make the protection afforded by a wide road bed.

The grade of the road from the point where it leaves the influence of the grades of streets in New York, is, with the exception of the line between Collaberg bay and Peekskill, (a distance of about five miles,) essentially level. The departures being only cases to more effectually provide for the drainage of the road in deep cuts; and to rise at certain points, where it is supposed the ice or spray from the river may incommode the use of the road; all of which are for short distances, and will not materially affect the movement of a train of cars, the momentum of which will carry them over these short ascents.

The route from New York to Fishkill landing has been traced by instrumental survey. As this portion presented the difficulties of the enterprise, the surveys and examinations have been made with much care. It is quite probable that further surveys will indicate facilities for more or less improving the line; the estimate, however, is a computation made on an actual location; and may be regarded as sufficient for the requisites of the line, and will be presented in as much detail as is believed to be necessary for a full understanding of the subject.

The only instrumental survey between Fishkill landing and Albany was made by R. P. Morgan, civil engineer, in 1842. Mr. Morgan's survey does not appear to have been made as thoroughly as the one above presented; probably from the want of time and means to make it more complete. It is proper, however, to remark, that the delineation of country on his map and profile, and his description, so far as it goes, have been found by the recent survey to be substantially correct.

I have made a reconnoissance of the country between Fishkill landing and Albany, following the route surveyed by Mr. Morgan.

With his map and profile in hand, I could trace his line so far as to see its general correspondence with the formation of the country. It was not practicable, from this examination, to pronounce on the accuracy of the grades given by him; but the general form of the country, and the accuracy of his map and profile on the part that has been followed by instrumental examination, leave no doubt his map and profile are essentially correct for the remainder of the route. With these remarks I proceed to the reconnoissance from Fishkill landing northwards.

After passing Fishkill landing, Mr. Morgan's line follows the river about one mile, when the grade, (sixteen feet to the mile,) begins to leave the river shore, and, following a gentle slope, rises towards the table land, that prevails very generally between the village of Fishkill and Albany, at a distance of from one to five miles from the river.

The country from Fishkill landing presents a highly favorable appearance for carrying a line of easy grade to this table land. At a distance of about nine miles from Fishkill landing, the line crosses Wappinger's creek at an elevation favorable for a bridge over it. The bed and shores of the creek at this place are of rock, affording safe and convenient foundation for a stone bridge. The grade line has here attained an elevation of about one hundred and thirty-five feet above the level of the river. Continuing on various grades, of from two to ten feet per mile, the line reaches Poughkeepsie at an elevation of one hundred and seventy-five feet above the river. There are several small streams between Fishkill landing and Poughkeepsie that will require culverts; two, of ten feet span; two of six feet, and four of two feet span. There are four valleys crossed on this section of the line, that will require considerable embankments. Generally, the cuttings and fillings are of moderate extent.

On leaving Poughkeepsie, the line crosses Fall creek, a stream that will require a bridge of from thirty to forty feet span. Proceeding northwards, the country is irregular for a distance of three miles. The line passes small knolls and hollows; some of the former are rocky, though in general there are materials convenient for the embankments required. The soil inclines to heavy loam, with gravel and sand interspersed. The prevailing rock is graywacke. The line here reaches a beautiful plain, very moderately undulating.—With very light work it passes the village of Hyde Park. After passing Elbow creek, half a mile north of Hyde Park, the country is moderately irregular to Rhinebeck. A large portion of this is under the grade level; requiring, generally, light embankments, with two valleys, one of twenty feet, and one thirty feet below grade; materials for filling are easily obtained at short distances. Rock appears in several places, and becomes more slaty. About Hyde Park the soil is sand and gravelly loam; as the line approaches Rhinebeck, the soil becomes a stiff clay loam, and near Rhinebeck sand and gravel again prevail. Near the village of Rhinebeck, the line crosses Landtman creek; which will re-

quire a bridge of twenty-five feet span. With the exception of this and Fallkill at Poughkeepsie, there is no stream requiring a culvert larger than ten feet. Elbow creek requires a culvert of ten feet; and for other streams, one of six feet, two of four feet, and three of two feet, will be required.

At Rhinebeck the line is on a beautiful table land, over which the grade is maintained very easy, to the village of Red Hook, a distance of nine miles. The surface soil is sandy loam; resting probably on clay, and in some places on slate rock. Very little rock appears in the immediate vicinity of the line; though it appears at several places in small ridges from one-fourth to one mile from it. The rock continues to be graywacke and slate. Saw Kill creek is the only stream of note on this section; and will require a culvert of ten feet span. Other small streams will require two culverts of four feet, and three of two feet span.

From Upper Red Hook the country continues highly favorable to Clermont. About one and a half miles north of the latter place the line crosses Ancram creek, a stream that will require a bridge with sixty feet water way. Thence to Hudson, the country presents a surface that may be graded for a moderate expense. The soil is generally a clay loam; sand and gravel appear to occur but seldom. The prevailing rock of this section is graywacke and slate. Near Hudson, two limestone ledges occur. The rock generally occurs in insulated ridges and knolls, at a distance of one-fourth to one-half a mile from the line. One culvert of ten feet, two of six feet, two of four feet, and five of two feet span, will be required.

From Hudson the line inclines easterly, passing over favorable ground about three miles to Claverack creek. This creek will require a bridge of eighty feet water way. For a distance of two miles, including the valley of this creek, the ground is uneven, requiring embankments of considerable extent in crossing ravines in the table land, which, with the exception of these ravines that have been cut by small water courses, presents a favorable surface. It then for two miles presents light work, to a valley opposite the print works, near the mouth of Claverack creek. This valley will require a heavy embankment. After leaving it the line is highly favorable for three miles, where it reaches the Kinderhook creek, a short distance above Stayvesant falls. The situation for crossing is very favorable, presenting a rock foundation for a bridge. The bridge will require a water way of one hundred feet. After crossing this creek, the line continues on the Kinderhook plains, and for about one and a half miles, (which brings it opposite the village of Kinderhook,) will be graded at a small expense. The surface of the ground then becomes considerably irregular, for about one mile: the line being frequently crossed by narrow ravines, that fall below the general surface of the plain. It then presents a very favorable surface for about four and a half miles to Mitchell's creek. This stream will require a culvert of

fifteen feet span. The embankment across its valley will be heavy. From Mitchell's creek to Van Buren creek, a distance of three and a half miles, the country is moderately irregular, without any important features, and will be of a medium character in expense of grading. The line is here descending from the level of the Kinderhook plain, to regain the banks of the Hudson. From Van Buren's creek, for five miles north, it is intersected by numerous ravines, the most prominent of which are those of Mourdeners creek and Vredri Kill. Van Buren's creek will require a bridge of forty feet span; Mourdeners and Vredri Kill 20 feet each. This section of five miles will be expensive grading. After passing it, the line occupies very favorable ground for the next five miles, which brings it to the banks of the Hudson opposite Albany. In addition to the bridges and culverts mentioned in the above description, there will be required, between Hudson and Albany, one of eight feet span, one of six feet span, five of four feet span, and eight of two feet span. The soil on this section is with few exceptions a heavy clay loam. The rock in the vicinity of the line is mostly slate with a small proportion of graywacke.

In reference to the general character of the country from Fishkill landing to Albany, it presents a very favorable surface to obtain easy grades, and good lines for a railroad. It is quite probable the line run by Mr. Morgan may, by a thorough survey, be much improved in several places. In order to prepare an estimate, computations of quantities have been made from Mr. Morgan's profile, and my own observations, which will be made the basis for the line above Fishkill landing. The estimates provide that all bridges on this division, (above Fishkill landing) and all culverts are to be constructed of stone masonry. At situations where the ground admits of it, public roads are provided to pass over the railroad on bridges, composed of stone abutments and timber flooring.

From the surveys and examinations above detailed, it may be remarked, that the project of a railroad from New York to Albany, on and near the east shore of the Hudson, is not only practicable, but may be accomplished at a reasonable expense, as compared with railroads generally in this country. The grading of about twenty miles through the Highlands will be, decidedly, of an expensive character; but less so than might be expected from the general appearance of the country. About forty miles, extending from New York to Peekskill, running mostly along the river shore, will be rather heavy in the expense of grading. The remaining distance of eighty-four miles, from Fishkill landing to Albany, is, in general, a line that may be graded at a medium rate of expense. The great length of favorable line, as compared with that most expensive, so modifies the general average of grading, that the route as a whole, cannot be regarded as very expensive. It may be further remarked, that after the grading is accomplished, all other expenses, such as superstructure, depot stations, engines, cars, etc., will be essentially

the same for roads of equal excellence, irrespective of the cost of grading.

#### *Character and Importance of the Trade.*

Before proceeding to the estimate of expense, it is necessary to consider the character and magnitude of the traffic the road is designed to accommodate.

It will not be controverted that the construction of railroads within the last ten years, in opening new, and improving old avenues of intercommunication, has produced a material influence on the relative advantages of commercial towns. Natural obstacles to trade, heretofore deemed insurmountable, have been to a great extent overcome, and in a greater or less degree, advantages equalized. There seems no good reason to doubt that this mode of improvement will go on still more to equalize advantages by those means which have hitherto proved so successful, and cases will no doubt occur where the artificial channels of communication will supercede the natural to a much greater degree, and change the commercial aspect of towns.

This city enjoys natural advantages for trade of a very high order; and these have hitherto carried her forward at such a rapid rate, that her citizens have not thought it necessary to make any important movement to improve these advantages. The Hudson river and the canals of the state have borne their immense commerce to her wharves.—Until recently, it was supposed that nature had set its barriers so firmly against any change, that no diversion from this course of trade could be effected. While it is fully believed these advantages will continue to afford the elements of extensive business to the city, it cannot, on the other hand, be doubted, that efforts for diversion, in the manner above alluded to, will be successful to a great extent. The present object, therefore, is to consider how the enterprize under consideration may be made beneficial in maintaining and advancing the ascendancy of the city, in the present and prospective commerce of the country.

While the western and northern trade depended wholly on the canals for transportation to the Hudson, there was comparatively little importance in the means of winter transportation on the river. When the ice closed the Hudson, it also closed the canals, and the transit of property was suspended throughout. The opening of the railroad from the Hudson river to Buffalo for the transportation of freight during the winter, has materially changed the aspect of this question. During the close of navigation on the Hudson, the only convenient avenue to an Atlantic market, for the produce brought down the railroads from the western part of this state, is to Boston. Last winter was the first under this arrangement of trade; its influence was not very great; still it made considerable change in the direction of agricultural products—particularly in the pork trade from the western part of this state.\* If the pork trade takes

\* It appears that pork in the hog is worth from 25 to 50 cents per hundred more, if it can be carried to Boston or New York, than if packed in the country. This is an inducement for farmers to keep it, until the weather will permit its being sent to Boston by



that direction, other articles will go with it, and, more or less, the whole produce trade will be affected. And as produce finds a market in Boston by means of superior facilities in transportation, merchants from the country will be led to that market for the supply of goods they need, and manufacturers for the cotton, etc., they want in the winter season. Connections once formed will naturally lead to more or less business at all seasons; an advantage, it is not probable the enterprising merchants of Boston will leave unimproved.

As a naval depot, it is very important this city should have a good winter communication with the interior, without which other Atlantic cities, having far less advantages in other respects, will be preferred, from the facilities which railroads will give them of keeping up their communications throughout the year.

It is believed to be unnecessary to dwell more on this point. The fact that the roads west of the Hudson are authorized to carry freight in the winter, renders it obviously of great importance that a continuation of these roads should extend to New York, in order that this city may have a fair participation in the trade—may at least be a competitor—and our fellow citizens in the interior have a choice of markets.

This may, and probably will, be greatly affected at times by the state of the Atlantic markets in the winter. But as an enterprize of the extent of the projected work cannot be sustained by the trade that may be occasionally stimulated to unusual activity, it is not regarded as suitable data on which to rely for its prospects of usefulness, though it may often be quite important to the commerce of the city, and the profits of the railroad.

The position will hardly be denied, that a railroad on the route proposed, adapted to the most economical transportation of freight during the winter season, would be of great commercial importance, both to this city and the interior of the state. At the same time, it cannot be supposed that a railroad on the margin of the Hudson would carry any important amount of freight, when the river was not obstructed by ice. Probably one freight train per day, would be as much as could be sustained at remunerating prices during the season of navigation; and, depending mainly on a winter business, averaging about four months of the year, it is not believed the road would afford an income sufficient to remunerate the capital required for its construction.

The legislature, by repeated acts, have authorized the construction of a railroad between New York and Albany; and efforts at different times have been made to obtain the funds required for its construction. But hitherto it has not sufficiently commanded the

the railroads. The experience of last winter, as a first specimen of this new course of trade, leaves no doubt that the main export from the Mohawk valley the western and much of the northern part of this state, will go to Boston, unless some new channel is provided for a winter transit. It is said that the principal export of pork, last winter, from Rensselaer, Saratoga and Albany counties, was to Boston.

confidence of capitalists to obtain the requisite means. The prominent reason has probably been, the belief that no railroad could compete with the Hudson during the season of navigation, even for the passenger business.

It is now proposed to investigate the capacity of a railroad to compete with steamboats for a portion of the passenger trade.

A few years ago, it would have been considered a hopeless task to undertake to show that any railroad could maintain such competition. But the safety, ease, rapidity and economy in the transportation of passengers by railroads, which experience now exhibits, places the proposition in a different light.

The first consideration is the speed at which the railroad may convey passengers. This will depend mainly on the character of the road—its directness of line—its grades—and the smoothness and firmness secured in its construction.

In regard to direction, the proposed route will be from four-fifths to five-sixths straight line; the remainder will be very easy curvature, only four instances as low as two thousand feet radius; the remainder being from three thousand to ten thousand feet radius.

In regard to grade, nearly half the length of the road will be level; the remainder will be ascending or descending at the rate of from seven to seventeen feet per mile.

The line and grade may therefore be regarded as well adapted to a high rate of speed.

#### Plan of Road.

The following plan of road is proposed:

Width of excavations, generally 34 feet, for a double track; embankments, 26 to 30 feet; the latter width being for more exposed places on the river shore.

Foundations for superstructure, to be of clean gravel or sand, 2½ feet deep, where such material can be had; where this cannot be obtained of sufficient purity, broken stone to be substituted so far as may be necessary. With a road well drained, such a foundation will be safe from heaving by frost, which is so obviously an indispensable requisite for a good road, that I do not consider a discussion on its propriety necessary.

On the foundation prepared as above, chestnut cross sleepers, hewed flat on two sides, to give not less than 6 inches thickness of timber, to be laid down to receive the rails. This is the only timber I propose to use in the superstructure, except for special purposes. On these sleepers, laid down at the rate of seven sleepers to eighteen feet, or nearly 2 feet 7 inches from centre to centre, I propose to lay an iron rail, that shall weigh seventy pounds to the yard. The road to be well fenced against cattle, etc.

Well constructed on the plan described, the road would be superior to any hitherto constructed in the United States, and would be well adapted to a high speed, especially on a line, having its curves and grades as favorable as may be had on the route of the proposed railroad. In the winter, snow could be readily cleared from the track of such a road, and consequently it would be well adapted to a winter business. The advantages of a substantial work, would not only render it

more useful as a means of transit, but would reduce the expense of repairs.

A speed of 30 miles per hour has been successfully maintained on the Long Island railroad, on the Norwich and Worcester, and to some extent, on other roads in this country. The first of these is very direct in line, with grades to some extent of 40 feet per mile: the second, with grades of 30 feet to the mile, and not peculiarly favorable in its curves. A greater speed is regularly maintained on the Great Western railroad in England. On each of the above roads a much higher speed has been run, on special occasions. In view of the character of the proposed road, a speed of 35 miles per hour can in no respect be regarded as a matter resting on speculation. Experience has fully shown, that this speed may be regularly accomplished, and that the motion is pleasant and highly satisfactory to travellers in general. It is believed that no road, having established a high rate of speed, has been required by the public to adopt a lower rate. It is proverbial in this country, that travellers, either for business or amusement, generally prefer the most expeditious mode of conveyance. Adopting this speed, 35 miles an hour, the time required to make the passage between this city and Albany may be taken at four hours and a half. This would only allow such stops as are necessary to replenish wood and water. Trains for way passengers would require about one hour more, or 5½ hours between the two cities.

It is confidently believed that such a railroad would maintain a successful competition with steamboats, during the season of navigation, provided the railroad fare should not exceed \$1.50 to \$2 for a "through" passage. In order to ascertain at what rate of fare the proposed railroad can afford to run, an estimate of the cost will be presented, and then the cost of running it will be examined.

The estimate for grading provides for a double track from New York to Poughkeepsie; and thence to Greenbush, the masonry of culverts and bridges for a double track and the cutting and filling for a single track.—Between New York and Poughkeepsie the grading should be at first prepared for a double track. One prominent reason for this is, that a large portion of this section lies along the river, requiring defences against its action, consequently the full width must be made, or about twice the expense of such defences will be incurred by first making a single and then enlarging for a double track. On this part of the route, a double track will be wanted as early as it can be laid down. Above Poughkeepsie, a single track will do a large business, and the second track may be left out of view for the present, though a double track throughout must be looked to as necessary to meet the ultimate demands of business, and render the enterprize complete. The district through the Highlands, (from Peekskill to Fishkill,) should have a double track laid down before the road is put in operation to Greenbush. The trains may easily be arranged to meet on this district, but more latitude in time of starting will be se-

cured by completing the double track from New York to Poughkeepsie. It may however be very well managed with a double track through the Highlands, which can be extended while the road is in operation.

In the estimate the price of iron rails delivered in New York is taken at \$75 per ton (of 2,240 pounds.) This is not sufficient at the present market price, but some reduction may be looked for, before much will be wanted for the proposed road. In using a rail weighing 70 pounds per yard, its price makes a heavy item in the cost of the road; but there can be no doubt, such a rail will be the best economy, if not indispensable to successful operation under high speed. I therefore do not hesitate to recommend this weight of rail as best adapted to the wants of the road.

The estimate for land and damages, must be regarded in a great degree as conjectural, though it is believed to be a reasonable approximation. The inhabitants along the line have generally manifested a very friendly, and many of them an ardent interest in the enterprise. The opening of a cheap and easy winter (as well as a rapid summer) communication through this district, now very much secluded during the suspension of navigation, may well be regarded as highly important to their interest. This, if it does not lead to cessions of land, may be regarded as a protection against excessive damages. The line from this city to Fishkill landing, a distance of 60½ miles, occupies very little ground that is of much real value; if the ground under high water line be excluded, this section will not require over 300 acres of land; and but a small amount of buildings, or building lots, will be in the way. The line will, however, cut off some small strips of ground in front of country seats, whose owners claim that they would be damaged by the road.—With the exception of a few trees, that in some cases will be cut off, it is difficult to see what serious damage will be done; while on the other hand the road will be an effectual defence against the action of the river, which now requires at many earthy points, considerable expense to maintain the banks, and will therefore in such places be more real benefit than injury. With a proper regard to the situation of the grounds, in locating the line, a well constructed railroad along these situations should not be regarded as a material injury, but an ornament and convenience. A railroad well fenced and operated by steam power, will interfere with the retirement of these situations, little if any more than a steamboat passing down the river; the occasional passing of a train will give a lively variety to such situations, and make them more rather than less interesting to most persons. It is therefore believed very few of the owners, on full consideration of the subject, will be willing, by claims of excessive damage, for what is only valuable at most as a matter of taste, to put themselves in the way of an important enterprise, which the great mass of their fellow citizens regard as highly useful, and indeed necessary to their welfare.

After leaving Fishkill landing, the line

for the most part passes through an excellent farming country to Albany. The average price of farms for this section is probably not far from \$60 per acre; ranging from \$40 to \$100, for farming purposes. The line must sometimes cut farms unfavorably, causing greater damage than the value of the land.—It is an important consideration, to this section in particular, that the road is to be well fenced. Building lots and buildings must be interfered with or occupied to some extent; though this will be very small for the extent of the line. This section of the route will require about 800 acres of land; and with the section below Fishkill landing, a total of eleven hundred acres. A small amount of this will be wanted for stations and depots.

I have estimated this item at \$250,000, exclusive of depot grounds in the city of New York, which is quite as much as it ought to cost; and probably it will be sufficient.

#### Summary of Estimate.

Grading 141.69 miles, viz.		
From 14th street to Harlem creek .....	10.61	\$243,080
From Harlem creek to Peekskill .....	30.30	622,300
From Peekskill to Fishkill .....	17.40	688,200
From Fishkill to Poughkeepsie .....	15.12	194,920
From Poughkeepsie to Greenbush .....	68.26	856,480
For extending wharves at several places. } Est'd	30,000	\$2,634,980
Fencing, estimated .....		110,000
Land and damages, estimated .....		250,000
Superstructure.		
For one single track, with 20 miles double track, and extra for sidings at stations, depots, etc., together equal to 168 miles single track, at \$11,200 .....		1,881,600
Amount .....		\$4,876,580
Add ten per cent. for contingencies and superintendence .....		487,658
Engines, cars, depots, etc .....		5,364,348
		630,000
Total .....		\$5,994,238
Say .....		6,000,000
Length of road from Chambers street to intersection of 14th street and 11th avenue .....		
Do. 14th street to Greenbush ..	141.69	
Total .....	143.89	
Say .....	144	

The following extract from the Mining Journal of 20th December, gives an interesting and useful, yet very concise account of the fluctuations in the iron trade of Great Britain since 1830:

landed property. Observe in the London advertisements of estates to be sold by auction, the care with which the attention of capitalists is drawn to the fact that this highly 'eligible property,' although 40 miles distant, 'is within an hour of the metropolis,' by the Great Western, with a station close at hand. The auctioneer knows well that his great capitalist would never go near the spot, if he were told 'you must travel by coach or with post horses, and the journey will occupy you half a day.' The landed aristocracy will not cease, for some time longer, to plunder railway companies under the pretence of vested rights; and yet not only do estates in the neighborhood of railways rise in value, but such is the preference for property so situated, that estates without them can with difficulty be sold; a country residence that can only be reached by the old modes of travelling, is deemed practically inaccessible, and as property, is really depreciated in the market to the extent of five, ten, and fifteen per cent."

At a time like the present, when the increased demand for iron for railway purposes is considered as having a considerable influence on its manufacture, whether with reference to its cost or otherwise; and, while various estimates have been made as to the capacity of our several works to supply the increasing demand at home and abroad, it may be well to refer to the prices of bar iron for the past fifteen years. In the year 1830, we find the price of bar iron in Wales quoted 5*l.* 10*s.*; in 1833, it realized 7*l.* 2*s.* 6*d.*; but, again, in 1835 dropped to the former quotation; the next two or three years (remembered, doubtless, by many of our readers) created a demand, in some degree, artificial, and we find a corresponding advance in price. Thus, in 1836, our highest quotation is 10*l.*, while in 1837 we have one as low as 6*l.*; a rally having, however, taken place in 1839, we again find bar-iron quoted at 9*l.* 10*s.*, while in less than four years it is reduced below any price already quoted; as in the months of June, July, and August, 1843, bar iron was sold at 4*l.* per ton. In the past year no higher price than 5*l.* 15*s.* was obtained; and at the commencement of the present year the price quoted was 6*l.* to 6*l.* 10*s.* On referring to our present quotations, it will be seen that the price has advanced to 50 per cent., the nearest figure being 9*l.* 15*s.* to 10*l.* per ton.

When it is considered that the make of two works, with thirty furnaces, yield, taken at the rough, 3000 tons per week, or 150,000 tons per annum, it requires little power of imagination to consider the importance to be attached to this branch of our manufactures. If we value the produce of these two works (Guest's and Crawshaw's) at the price quoted in 1843, assuming the entire make to be converted into bar iron, we should find it to amount to 600,000*l.* per annum, while, at the present prices, it would give a return of 1,350,000*l.*

**The Scotch Iron Trade.**—There appears to be no end of new iron works. We have just heard of several works about to be erected, but four certain, viz., one in the parish of Lesmahagow, another near Wilsontown iron works, a third at Dalmellington, and a fourth near Kilmarnock, each of which will probably commence with four blast furnaces. It may be interesting to estimate the production when the projected works are in full operation. There are in blast, at present, ninety-one furnaces, and it is expected that twenty-five additional ones will be in blast in three months. Now, with the several new furnaces abovementioned, there will be in blast next year no fewer than 132 furnaces. These furnaces will produce the enormous quantity of 17,000 tons weekly, or 884,000 tons annually, which, with the English production of 1,200,000, will give a total produce of 2,000,000 tons of pig iron annually. So large and increasing a production accounts for the great accumulation of the stock of pig iron, the stock in Glasgow is estimated at upwards of 250,000 tons, notwithstanding the extraordinary demand made for this article for the purposes of railway companies.

\* Extract from Westminster Review, Dec., 1845: Art. 7; railway investment.—"So also it is with



Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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## AMERICAN RAILROAD JOURNAL.

PUBLISHED BY D. K. MINOR, 23 Chambers street, N. Y.

Saturday, February 14, 1846.

## Anthracite Furnaces in Pennsylvania.

We republish the list of anthracite furnaces in Pennsylvania, for the purpose of requesting gentlemen who may receive it to furnish us with a statement in relation to each furnace, forge and rolling mill within their knowledge. We desire to obtain a list of each iron manufactory in the country.

The following list of furnaces in Pennsylvania, using anthracite coal, has been furnished us for publication by an intelligent dealer in iron. The object is to show what is doing in the manufacture of iron now in this country, and what we have to rely upon for our supplies during the next three or four years; we shall be under still greater obligation to him for a similar one of the charcoal furnaces and the rolling mills in the state, as we desire to show those interested in the construction of new railroads, that we shall soon be able to meet the demand for iron for all our own purposes, especially for railroads.

Names of Furnaces.	Proprietors.	Ft. bos. hes.	Yld per wk.
1 Lackawanna.....	Scranton & co.....	10	30
2 Fishing creek.....	Iron Dale company.....	14	150
1 Roaring creek.....	S. R. Wood.....	9	35
1 Danville.....	Groves.....	9	35
1 ".....	Montour iron comp'y.....	74	30
2 ".....	".....	12	130
1 ".....	".....	15	80
1 Red Pt. 3 m. below.....	Samuel R. Wood.....	14	75
1 Shamokin.....	Bryant & Wood.....	10	45
1 Harrisburg.....	David R. Porter.....	11	55
1 Mount Joy.....	W. Stewart & co.....	8	30
3 Columbia.....	Proprietors unknown.....	8	30
1 York.....	".....	10	40
1 St. Clair.....	Burd Patterson.....	14	75
1 Pottsville.....	G. G. Palmer.....	9.2	35
1 Valley 6 m. above.....	Pomroy & Harbeson.....	8	30
1 Reading.....	Eckert & Broth.....	14	75
1 Phoenixville.....	Reeves, Buck & co.....	9	35
2 ".....	".....	12	130
1 Conshehocken.....	S. Colwell & co.....	10	40
1 Spring Mills.....	Kunzi & Farr.....	10	40
1 1/2 mile below S.M.....	Livingston & Lyman.....	13	60
1 South Easton.....	Goodell & co.....	9	35
1 ".....	".....	11	50
1 Glendon 1 1/2 m. ab.....	C. Jackson, Jr.....	10	60
1 ".....	".....	12	75
1 Cranesville.....	Lehigh Crane iron co.....	14	85
1 ".....	".....	12	65
1 ".....	".....	18	100

\* In blast. † Nearly completed. ‡ Preparing to blow in. || Now erecting.

## The Southern and Western Literary Messenger and Review.

Number 1, volume XII, for 1846. B. B. Minor editor, Richmond, Va.

This excellent periodical, the first appearance of which we well recollect in 1834, or 5, has now en-

tered upon its twelfth year. The number for January, which was delayed by the absence of the editor, reached us late in the month, and we have only had an opportunity to glance at its contents; but from the hasty examination that we have been able to give it we are led to believe that it fully sustains its early reputation, and entitled to a position among the periodicals of the day, second to none, and superior to most, of them. Its prominent and valuable features are that it addresses itself more directly to the reason and judgment than to the passions, whims and caprices of the reader; and it may therefore be with safety and propriety placed in the hands of the young, as well as of those of mature age, as no one can read it without deriving useful lessons from its pages; we hope, therefore, that it has acquired an extensive circulation, and that its editor has derived ample returns for his labors. It should certainly receive a liberal support from the south and west, whose able advocate it is, without being sectional.

Its motto is not altogether to our liking, though we go the whole for the first part of it, viz. "In the union and for the union;" but the remainder, "In the south and for the south and west," might, we think, be improved somewhat by slight modifications. We will not, however, suggest any at present, as we might not improve it. We give the prospectus in this number, and shall be glad to receive and forward subscriptions for any of our readers who desire to obtain the work: or they can enclose the amount direct to the editor.

It is published monthly, 64 large octavo pages, on beautiful paper, at five dollars a year in advance.

The Southern and Western Literary Messenger and Review.—Having purchased, from the proprietors, Simms' "Southern and Western Monthly Magazine and Review," it will, from this time be blended with "The Southern Literary Messenger."

The Messenger has been established more than eleven years—much longer than any other southern work ever existed—during which it has maintained the highest rank among American periodicals. It has always been eminently southern; and for several years has been addressing itself to the west, both editorially, and by its ablest contributors. It will continue to address itself to the south and west. To indicate this, and its union with Simms' Magazine, the titles of the separate works will be blended in "The Southern and Western Literary Messenger and Review," retaining the features of each, but improving them as far as practicable. While it will be distinctively the advocate of the south and west, its motto will be, "In the union and for the union! In the south, and for the south and west!" It will be published simultaneously in Charleston and in Richmond. The subscribers to Simms' Magazine especially, and the friends of southern and western literature, and the public generally, are invited to inlist in its behalf.

The aid of Mr. Simms has been secured, not only as a contributor, but in the critical and editorial department; and other southern and western contributors will be added to those already engaged for the Messenger. Communications for the "Messenger and Review" may be sent to the office in Richmond.

Each number of the "Messenger and Review" will contain 64 super-royal octavo pages, filled with the choicest matter, of great variety—embracing novels, tales, poems, travels, critiques, reviews, histories, biography, papers on the army, navy, and other national affairs, and discussions of all questions affecting the rights, interests and institutions of the south and west.

The subscription price will be \$5, but the work will contain very nearly twice as much matter as Simms' Magazine, and be published in an elegant style, like the present Messenger.

Those indebted to the Magazine, will please make immediate payment. \$7 50 will be taken in full for subscription due to Simms' Magazine, and for the "Messenger and Review," for 1846.

B. B. MINOR, Editor and Proprietor.  
Richmond, Va., January, 1846.

## Hudson River or N. York and Albany R. R.

In our last number but one, we referred to the report of Mr. J. B. Jervis, in relation to the river route for a railroad to Albany. We then promised to give the report, and we now proceed to redeem that promise, at least in part.

We have also now before us the recent annual report of the New York and Harlem railroad company, to the secretary of state, accompanied by the report of the chief engineer, Mr. Allan Campbell, in relation to that work beyond White Plains; from which we learn that they are progressing very fairly—more than one-half of the excavation between White Plains and the north line of the county, 25-82 miles, is already done, and the balance of the grading is to be done by the 1st of May; they have also located, and got nearly ready for contract, 28 miles further to Dover, in Dutchess co., which is 544 from White Plains, and 82 from New York; and their engineers are still in the field—thus showing that they intend, at all events, to make a railroad to, or to connect with some other road near, Albany; let others do what they may.

These reports bring to mind what has passed in former years; and we have referred back to the report of Mr. J. D. Allen, published in the Railroad Journal in January, 1837, and to Mr. E. F. Johnson's report, published also in the Railroad Journal, in January, 1839. From a reference to these reports we find that though not precisely, yet they mainly follow the same route, viz: the valleys of the Bronx, Davis' brook, Sawmill river, and the Croton, which may be considered the most favorable for an interior line; its grades being within what are considered favorable for locomotive power and high speed.

From the remarks of gentlemen, interested in the river route, at the meeting for the receipt of Mr. Jervis' report, we are led to presume that that road is to be constructed, and that, too, without delay, and in the very best manner, so as to insure the highest rates of speed, [35 miles an hour,] and the lowest rates of fare, [\$1 50, through, or about one cent a mile,] that have been adopted in this country—if they obtain a charter. We are also assured by those who now have the management of the interior line, and who are giving substantial evidence of their determination to carry their road through to Albany—or, at least, to a connection with the Albany and West Stockbridge road—thus opening a railroad communication between this city and Albany, though not such an one as is proposed by those who advocate the river route; nor, indeed, such an one as we should and must have between the two capitals of the state, to compete successfully with the Hudson river on the one hand, and the Albany and Boston, and the Housatonic railroad on the other.

There is no other route in the country where the success of the enterprise depends so entirely upon the superior character of the structure, as between New York and Albany, because there is no other line of equal extent, where the competition will be so great and so constantly increasing. The railroad, therefore, must rely mainly for most of its passenger traffic, both through and way, upon its ability for high speed and low fares. It is idle to think that a railroad will secure the travel, unless it has greatly the advantage in speed. Neither twenty, nor twenty-five miles an hour will answer. Nothing short of thirty, or thirty-five and even fifty miles will be sometimes required; and the company that intends to secure the travel, and to do a fair freighting business, must construct their road in the very best manner: and therefore it is that we place these two reports before the readers of the Journal side

by side, and shall endeavor also to lay them before, and bring them to the notice of, a large number of the people of this city, who have a deep interest in the matter—much deeper, indeed, than they seem to apprehend—that they might better judge of the merits and probable success of the two lines—or of either; but as they do not deem it important, we certainly need not.

Not only every property holder, and business man, but also every person who eats bread and meat at his own expense, has an interest in the proper construction of this line of road, and not only of its construction but its proper location, as well, that it may draw to this city, at all seasons of the year, and especially in winter, the surplus produce, the small notions, and the bulky articles of agriculture manufactures and mines, to the greatest possible extent. Vegetables, milk, eggs, meat of all kinds, poultry and flour should be coming into this city every week, and week day of the year, not only from the counties along the line, between here and Albany, and from the west, even to Buffalo and beyond, but also from the entire valley of western Vermont, one of the most productive regions in all New England through which there will be a good railroad from Canada line, via Burlington, Rutland and Bennington to Pittsfield, Massachusetts, there to connect with the Boston and Albany road, and from whence we may, if we will, take a large share—but to do so we must be awake, and open a direct road, of a superior character, or it will go to Boston, for their benefit as they deserve, and we shall lose it as we richly deserve, if we do not adopt all proper measures to draw it here.

Now that the people of this city begin to be aroused to the importance of a road northwardly, the question naturally arises how shall it be constructed, and where shall it be located, that it may accomplish the greatest good to the greatest number of people.

The first question is answered satisfactorily in Mr. Jervis' report. It must be constructed in the very best manner, and it will cost from thirty to thirty-five thousand dollars per mile; but the second question is not so easily disposed of. There are many things to be considered: rival routes and local interests are to be considered and reconciled. Other things being equal, we should strenuously urge the interior route—because, 1st, it would develop new and important resources—afford facilities to those who are now in a measure isolated, and open a new avenue for the people of this city to enjoy country air, country residences and country pleasures; and at the same time enable us to intercept—by a branch from the main line, somewhere in Columbia county, or, indeed, by a road already built to the Massachusetts line—the rich products of western Vermont, and northern New York, as they come down to Pittsfield on a road soon to be constructed, on their way to Boston; as well as a part of what now goes to Boston over the Western road, from the interior of this state, and from the west. Such would be some of the results of a railroad properly constructed through the interior of the river counties, to Albany. We say to Albany, because the line between New York and Albany must be independent of all other, or rival management—with a branch to the Western railroad where it crosses the Massachusetts line. But, to enjoy all the advantages within our reach, by such a medium of communication, our capitalists and business men should become interested in, and contribute largely to the construction of the western Vermont road from Rutland to Bennington and the Massachusetts line, that they may have a voice in its management, as well as the business men of

Boston, who are now moving for that trade, and will have it too—unless we open a way as good as their's, for it to roll down to us.

This, then, is our choice of routes, other things being equal—but they are not equal. The grades on the interior line are nearly twice as great as the grades are reported to be on the river line—yet with a properly constructed road, they may be overcome with ease, even at high velocities. Then, again that portion of the road between Harlem and White Plains is not suitable for the business between New York and Albany. It must be entirely rebuilt. Nor is that section now under contract, and that prepared for contract—though much superior to that in use—what it should be, yet we believe the engineer will make the most of the means placed at his disposal; but it has been abundantly proved that a first rate railroad is not often built for even \$25,000 per mile.

We deem the present an important period in the history of American railroads; and doubly important to this city, where so little, comparatively, has been done. We are therefore the more desirous that every step now taken should be in the right direction, and in the most thorough manner. We should be well pleased to feel assured that the system is to be relieved from at least a part of the odium heaped upon it by New York railroad mismanagement; and therefore it is that we say to the gentlemen who control the New York and Harlem railroad company—consider well what you do, if you intend to make your road the route for business between New York and Albany—the north and west—as nothing short of a road of the very best character will command the confidence of the community, and the business of the country; and nothing short of a road of this character will prevent a rival line along the river—if even that will, now that the people on that line have become aroused to the importance of preventing the construction of a road through the interior—as they see clearly that such a road will operate seriously to their disadvantage, by taking a part of the business of that portion of the country lying between the river and the railroad, and the whole lying east of the road, which now goes, and would hereafter go, if no railroad were built, to the landings on the river. It is indeed the business from the back country which has made the river villages prosperous and wealthy; and they will not, and should not, willingly yield it up to a rival—as a first rate railroad through the eastern part of the counties will be—hence it is that they have recently employed an eminent engineer to re-survey, and verify a previous examination of the route, for a railroad, along the river, and to make an estimate for precisely such a road as should, and must, be built to compete successfully with the Hudson river, and the Western and Housatonic railroads. They and their engineer have evinced true wisdom—exceedingly good judgment—in making their estimates for the only description of road that will answer the purpose, and make the best returns to the stockholders when built. We admire the sagacity and enterprize of the people in the villages along the Hudson. They richly merit all the advantages which they possess in so eminent a degree, in the Hudson river—unsurpassed by any other of equal extent in the world—and as many additional ones as they can command. We very much doubt, however, if they can, at present, command the capital necessary to construct such a road as they have proposed to build. Can the people of the river towns furnish it? or do they anticipate the larger portion of it from this city? If the river towns could command it—could spare it from their own business—it might be furnished; but if they rely

upon the capitalists and property holders of this city, they will find few precedents laid down "in the books" to justify the anticipation!! We are aware that there are quite a large number of retired merchants, and men of wealth, residing along the fashionable bank of the Hudson, but not enough, we apprehend, who duly appreciate the importance of a railroad to Albany, to fill up the gap remaining in the six millions required, after the river villages, and our patriotic citizens shall have done all they will—not all they can—do.

There is only one principle, that we know of, upon which there is any reason to anticipate, or even to hope, that the citizens of New York will furnish, at the present time, the amount of capital necessary for this enterprize; and that is, that a man in business can lay by the second thousand, easier than the first five hundred dollars—therefore, as a few of the citizens have recently subscribed three millions to the New York and Erie, they will now subscribe five or six millions of dollars to the New York and Albany. We are inclined to believe, however, that the gentlemen, who did the city such signal service, by obtaining that subscription, will not attempt to wrest the laurels from the brow of others who may desire the honor of securing a subscription, in this city, of even five millions of dollars, for any enterprize now projected.—They must have learned to their entire satisfaction, that there is no task so thankless as that of an effort to induce a man, or a people, to appreciate the importance of availing themselves of the aid of art, and science, when they have come to the conclusion that "nature" has done so much for them, that it is quite unnecessary for them to do anything for themselves—except to collect rents or sell goods. True, nature has done much for this city; more, perhaps, than for any other city in the union, except one; yet if she relies upon what nature has done, without availing herself of what art and science can do, she will eventually find herself equaled, if not distanced, in the race, the contest, for the business of the mighty west. Boston has already crossed the Allegheny ridge, as Napoleon did the Alps. In self-defence, therefore, must New York gird on her armor, supply the munitions of war, and take the field, and keep it too, until she has done as much for herself as "nature" has done for her—then, and only then, may she rest from her labors.

#### Memorial to the Legislature.

**Canal Tolls on Railroad Freights.**—The following memorial to the legislature should be signed by every citizen of New York, who manufactures any article, sells goods, or eats bread; as well as by every inhabitant along the line of, and beyond the railroads from Albany westward to lake Erie; or who raises produce of any kind, or a dozen chickens for market.

Every person in the state, who used salt in his porridge, or on his potatoes; or a pocket handkerchief sold at auction, from 1817, until within a few years, was taxed to aid in constructing the canals; and now, for years past, every one who has travelled on the railroads, from Albany westward, has been taxed, by the prohibition from carrying freight on the railroads—thus causing them to charge high fares—to sustain the canals. To the first, the taxing of our salt, we all submitted with a good grace; and are quite content: but is it right—now that the canals have been completed by a tax upon the whole people, and will, if properly managed, keep themselves in repair, and refund their cost—we say, is it right that the tax should be continued, or that we should be prohibited from sending or receiving freight by the railroads, between Albany and Buffalo, without paying double tolls, that it may all be driven upon the canals, however inconvenient and injurious it may



be to the producer, as well as the consumer? In our view it is both unjust and ungenerous. The amount received for canal tolls is constantly increasing, though the rates are often reduced: and they will continue to increase, even if the railroads are allowed to carry freight; as the natural and regular increase of business will, in a year or two, supply any temporary deficiency on the canal which may occur in consequence of the competition created by the superior accommodations, in many respects of the railroads. Allow the railroads to carry freight, without reference to the canals, and in a little time many articles will find their way to market which are not now sent from that region, on account of the length of time required to reach there. It is a common and very true remark that, "railroads create their own business"—but it is of course *not* true, where railroads are not allowed to carry freight; consequently the country through which these roads pass is not benefitted as in other states, where railroads are unrestricted.

The great object in view in the construction of canals and railroads is unquestionably for the benefit and convenience of the people. The canals in this state were undertaken and built by the state, with a tax upon, and with the credit of the people; and they are managed by the state, for the accommodation of the people; and those who use them pay to the state for the privilege of using them; but railroads are built by companies of individuals, with their own capital—and they are managed for the mutual benefit of those who *build* and those who *use* them. It has become a well established fact that those roads which afford the best and greatest amount of accommodation, to the largest number of people, for the lowest rates, pay the *best dividends* to the stockholders. It does not matter, therefore, whether the people—the *farmer*, the *manufacturer* and the *merchant* pays to the state, or the company for the transportation of his produce, his manufactured articles, or his goods, if he be allowed to choose that mode of transportation which suits his purpose, his *interest* or his *convenience*; but it is a matter of very great importance to him, if he is prohibited *entirely* from using that mode of transportation most suitable to his business; or even if he is permitted to avail himself of the most suitable mode, by paying *double* price for it; as in the former case he may not be able, with some articles and at certain periods, to go to market *at all*; and in the latter case, though he may take his articles to market, it may be at a loss upon them, because others, who have had to pay but *one price* for freight can afford to *undersell* him.—Thus we see that the restrictions upon the railroads along the canals operate upon the *people*, the business of the country, more injuriously than upon the companies—as it not only affects those who desire to send *freight*, but also every *traveller*, as the companies are compelled to derive all their income from *travel*, and of course are obliged to charge higher rates of *fare* than if they were allowed to derive a part of their income from freight. The companies are, however, injured by this system, as the people in turn censure them for charging high rates, instead of requiring their members of the legislature to go for a repeal of the *restrictions*, and thus enable the companies to reduce their rates both of *fare* and *freight*, which we believe they would do if they were allowed to be governed by the same principles which govern other companies.

Let every merchant, then—every business man, and, indeed, *every citizen*, say to his own representative, and to the legislature, *relieve us* from this unequal, and therefore unjust tax.

Memorials to the legislature should be presented to the citizens of New York for their signatures, and should be numerous signed, and speedily sent to Albany.

*To the Honorable the Legislature of the State of New York, in Senate and Assembly convened:*

The memorial of the subscribers, inhabitants of the county of ——— respectfully sheweth, that they ask the passage of a law which shall give to the central line of railroad companies between Buffalo and the Hudson river the privilege of transporting freight the whole year, without requiring any tolls thereon to the state, and they ask leave to present the following reasons therefor:

This line of railway has been constructed entirely by private capital except that the credit of the state to a limited extent has been furnished to three of the companies.

We suppose that it is not the policy of the state to require anything that may be considered as a bonus or compensation, for the granting of a charter, or for the exercise of the proper business of the association under its act of incorporation.

The day when such a practice, alike, inconsistent with the honor of the state, and the proper business of legislation, would have been tolerated, has long since gone by.

Individuals have undoubtedly the same right to engage in the business of constructing a railroad that they have to build and establish a line of steamboats, to erect factories, mills, or to buy and improve farms.—They derive little from the legislature, except a convenient form of holding the property so as to give them perpetuity. And even a charter in this respect might not be necessary if our laws had not restricted the right of holding property in trust.

We do not therefore, consider that the toll required for the transportation of property upon the railroad can be justified, because of anything granted by the legislature to the persons who make the railroad.

It is unusual, we think, to require such tolls. The states of New Jersey and Maryland have reserved a portion of the amount received for the transportation of passengers upon the railroads across them, but the public judgement is so clearly against this policy that the latter state has already felt the force of it and is in some measure yielding the question.

Tolls are not imposed upon any railroad in this state except upon that part of this line which is west of Schenectady, and here there is a practical prohibition to carry freight except in the winter. This is the most difficult season of the year in which to operate the railroad. It is far more expensive than any other part of the year. It is not reasonable to suppose that the several railroad companies can provide the ample means to transport property that may be required when the use of such means is prohibited except in the winter. Hence when the winter arrives, and it is found that there is a good market for the productions of the country, then the means of the companies are not equal to the exigency of the demand. Who then suffers?—

Clearly those who have grain, pork and manufactured articles, etc., which they wish to send to market but which they cannot by reason of the policy which the legislature has acted under as to this line of railway.

We beg leave to ask whether it is not a singular course, to authorize the construction of a great public improvement, and then to restrict its use? Can there, with the experience of this day, be anything more paradoxical than the fact that a sagacious and just people have encouraged the making of a railroad, and at the same time have curbed and restrained its power of usefulness?

The New York and Erie railroad company have been most amply furnished with all the powers which it is possible for the legislature to confer, and yet no toll is required upon their freight. It will, to some extent, compete with this line for the same business. Other railroads have been authorized, upon which there is no prohibition as to the power of carrying property, nor are tolls reserved.—Why should there be a distinction against this line? Have the legislature the right to thus monopolize the business of transportation, by the imposition of such tolls on the railroad as either to prevent the growth and production of property by cutting it off from market, or by forcing it on to the canal?—May it not be questioned whether it is not such an interference in the right of property, and in the benefits which we are entitled to from our position, as to render the prohibition void? While thus restricted, the fact that we are brought so near to market by the railroad is rather tantalizing than consolatory.

We submit that this is not consistent with the enlarged and liberal spirit that should distinguish the legislature of a great state.—These tolls are practically a tax upon the farms, etc., along the line of the railway through the central and western part of the state, for they add to the price of the transportation of the productions of these farms to market, and thus lessen the value of the property to the owner. The policy is in this respect even more unfair than it would be to tax the transportation of property upon the Hudson river, because that would be more general, and because it has not required the expenditure of money and the great exertion that was required to make this line of railroad. Will it be said that it is necessary to protect the canal revenues? We would ask, protect them *for whom*, and *against whom*? If other means of transportation are better, cheaper, or more available than the canal, shall we not use them? Should not the owners of property be as free to send it to market by any avenue that they please as they are to enter into any business or production? Why should property be any more taxed which is carried upon the railroad, than if carried in sleighs? The cost of the transportation of an article to market forms a portion of its value at the place of sale. Why should the means of transportation be any more taxed than the means of production? We respectfully insist that the canal can be supported without limiting or crippling western production, that it is not necessary to tax us for

the property which we wish to send by railroad.

We say *tax* us, because these tolls must be paid by the property transported. The companies will not, and ought not, to pay them. There is no analogy between the railroad and the canal. Individual capital and exertion has made, supports, and operates the railroad, and it is liberally taxed for all purposes. On the other hand, the credit of the whole people has made, supports, and keeps the canals in repair, and the capital or cost invested in the canal pays no tax. While greatly benefiting the country through which it passes, it brings with it an immense expense in many particulars. The great business of transportation will continue upon the canal, but there are many kinds of property, and periods frequently occur, where it is better to transport upon the railroad.

A release from tolls upon the railroad would reduce the charges in a corresponding amount, and would thus exclusively benefit us, or rather free us from an unfair and unequal exaction.

We submit that this local and limited taxation upon us is unfair in another respect.—The railroad offers the best possible facilities for the transportation of some kinds of property, such as live stock, poultry, and pork in the hog, which, in the first of the winter, usually bears a good price at Albany, New York and Boston. If we can then get it to market, we save the expense of packing, etc., of interest; and most of all, we get it to market before the pork which is so cheaply produced in the western states, can arrive and reduce the price, as almost uniformly ensues.

This is a question of local and specific taxation upon the farming country along the line, of this railroad, and having felt the burthen of these tolls, we claim the right to earnestly ask to be exempted from them.

Whatever is paid for tolls upon property going to market is taken directly from the producer, for it so far lessens the price he receives for his property.

We are assured that a reduction of the price of transportation on the railroad fully corresponding with the amount of tolls will immediately ensue upon these tolls being waved by the state.

We therefore respectfully urge that this is not a question of benefiting the railroad corporations except only as they benefit us.—We can perceive that if unrestricted in the use of the railroad, a successful business shall be done in the carrying of property, that it will here, as in New England, the better enabled companies to reduce the general charges for the fare of passengers.

With much confidence that the more this is examined the more clear will be the propriety of the request, we submit this matter to the wisdom and justice of the legislature.

Dated January, 1846.

#### New York and Harlem Railroad Report.

Hon. N. S. Benton, secretary of state,

Sir:—In compliance with the resolution of the assembly, passed Feb. 2d, 1843, the New York and Harlem railroad company makes the following report:

The entire length of the New York and Harlem railroad, completed and in operation, is about 27 miles, extending from the city hall of the city of New York to White Plains. About 8 miles is a double track of heavy H rail, and the whole road run by steam is laid with heavy H rail, from 32d street to White Plains.

In addition to which the company is constructing 25 82 miles of road from White Plains to the southerly line of the county of Putnam, a large proportion of which is already graded, and the residue is to be completed by the first day of May next; and surveys are completed, ready to commence work at the opening of the spring for the further extension of the road to Dover, in the county of Dutchess, as will appear by the engineer's report to be submitted herewith.

The expense of this extension beyond White Plains, which are estimated to exceed for the current year the sum of \$500,000, are not included in this report, but will be reported in May next to the comptroller, pursuant to the act of the 13th May, 1845.

Number of miles of road in operation, about 27  
Cost of construction of road from the city hall to south side of Harlem river bridge, 8 miles, \$104,375 per mile.

South side of Harlem river bridge to Williams' bridge, 6 miles, \$38,475 per mile.

Williams' bridge to White Plains, 13 miles, \$11,277 per mile.

For a portion of the road graded under a former contract, and not used for the present line of the road, per mile..... 1,384 61

Total expenses of construction of the road in operation..... 1,213,456 00

Expenses of running and repairing the road for 1845..... 81,958 16

Number of passengers through. 63,340

Do. way passengers, no acct.

kept, but estimated at..... 1,350,000

Receipts for through passengers..... 31,670 00

" " way "..... 135,884 57

Total income from passengers..... 167,554 57

" " freight..... 9,882 78

Dividends, none.

Number of engines..... 8

" " train cars..... 20

" " city line cars..... 26

" " freight cars..... 16

" " baggage cars..... 2

" " machine shops..... 1

" " horses..... 140

" " men daily employed..... 150

" " miles run by passenger and freight trains, no account kept.

#### Engineer's Report.

To the executive committee,

Gentlemen:—I have the honor to submit, through your committee, to the board of directors, a brief statement of our operations in furtherance of the extension of the Harlem railroad above White Plains, and of the condition of the work at the close of the year 1845.

The charter, authorizing the extension of this railroad to Albany was obtained on the 14th of May last; the engineer department organized on the 1st of June, and surveys commenced on the 10th of that month.—Since that time various reports in detail, exhibiting the results obtained by our examinations of the country, have been submitted, on which has been predicated the decision of the board in regard to the final and definite location of the road through Westchester, Putnam and a part of Dutchess counties. I

therefore deem it necessary at this time merely to recapitulate some of the statements of former reports so far as regards the survey and final location of the road.

Although the country embraced in our examinations has heretofore been explored with reference to a railroad communication between New York and Albany, this circumstance did not lessen the amount of duty devolving on the engineer department, in deciding the important question of the proper route to be selected. On the contrary the fact that engineers of ability had held adverse opinions, seemed to require from him on whom would rest the responsibility of the selection, the strictest scrutiny and care.—Some other lines hitherto totally untried being also strongly advocated by intelligent residents of the country, a wide field was opened on this question at the commencement of the surveys.

Our attention was first devoted to the location through Westchester county with the view of putting this important division of the road under contract at the earliest possible day, the opening of this portion in advance of that through the more northern counties being justly deemed a matter of great importance, as the depot at the northern line of the county is accessible by good roads for a wide and extensive district of country. The distance from White Plains to the north line of the county is 25 82 miles. This extent of country was thoroughly explored and surveyed on the various lines, and a route selected by the first of September, when it was advertised for contract.

The principal obstacle to be overcome is a ridge of high broken ground running from east to west about 8 or 10 miles above White Plains. In this ridge, the Saw Mill, Bronx and other streams which discharge their waters southerly into the Hudson river and Long Island sound take their rise, as well as various small streams which fall down its northern slope into the Croton. Here occurs the first main summit between New York and Albany, which is elevated 310 feet above tide water. The immediate ascent to this summit on either side is quite gradual, not exceeding 26 feet per mile.

The route on departing from White Plains pursues the valley of the Bronx for three miles, when it passes to the valley of the Saw Mill by Davis' brook and Fly brook, tributaries of these two streams. The Saw Mill is then followed to its head waters, where the ridge before alluded to is passed, with a cutting of only 9 feet. The line now descends by the Kisco (a branch of the Croton) and Muddy brook to Cross river; thence over broken ground between this stream and the Croton to the valley of the latter, which is occupied through the remainder of Westchester, Putnam and a part of Dutchess counties. The course of these streams is such that a very direct line has been obtained at an expense which must be regarded as quite moderate.

On the 20th of September, contracts were closed for the grading, masonry and bridging of 26 miles, on terms most advantageous to



the company, and generally with experienced and able men. During the months of October and November the work was generally commenced by the contractors and at this time, ground has been broken on every section. The contracts require the completion of the work on or before the first day of May next, and except in a few cases where detention has arisen by reason of our inability to enter upon lands, requiring the process of law for their procurement, there is every prospect of the fulfilment of this obligation. Some short delay beyond that time may also take place in the construction of masonry laid in cement, which cannot be carried on through the winter months.

The favorable character of the route selected may be inferred from the small amount of bridging required; only four structures of any considerable magnitude being requisite within the 26 miles now in course of construction. One of 60 feet over the Bronx—one of 80 feet over the Titicus, one of 120 feet over Cross river and one of 160 feet over the Croton at the county line.

The following is an estimate of this division of the road:

Grading and masonry.....	\$175,000
Superstructure, at \$10,000 per mile.....	270,000
Right of way and fencing.....	60,000
Cost exclusive of depot buildings.....	\$505,000

Having definitely located and placed under contract the road through Westchester county our attention was next directed to a continuation of the route northerly. I have the pleasure to state that a complete and final location has been made through Putnam county and into Dutchess as far as the north line of the town of Dover, 54.79 miles from White Plains, and 82 miles from the city of New York.

A contract is about being entered with a large and able company of contractors for the whole of the work exclusive of iron. It will probably be closed within a few days, and work commenced forthwith. The obligation is to complete it by the 1st April, 1847.

The map and profile herewith presented will exhibit the nature of the country traversed. It will be seen that after passing the first five miles of Putnam county, where the line is confined to the rough and broken ground forming the western slope of the Croton, that the alignment and gradients are exceedingly favorable.

The following is an approximate estimate of this division of the road. Length, 28.96 miles.

Grading, masonry and bridging.....	\$300,000
Superstructure, [including turn-outs, etc.].....	300,000
Land and fencing.....	45,000
	\$645,000

The following statement will show the character of the line as far as located, in regard to curves and gradients. The minimum radius of curvature is 1900 feet, while nearly three-fourths of the curves have radii ranging from 2,000 to 12,000 feet.

The gradients except in one instance, do exceed 30 feet per mile. It was my intention originally, not to have exceeded this li-

mit and the road through Westchester county was located accordingly; but in pursuing our examinations through Putnam county, it was found that by resorting to an inclination of 35 feet per mile a much straighter road might be made and the line shortened 2 1/3 miles in a distance of 14. The short line was accordingly recommended and adopted. There may possibly be one or two more points in the northern part of Dutchess and Columbia counties, where the application of this gradient will be required to straighten the line, shorten the distance and decrease the cost; but generally the inclination will not exceed 30 feet per mile.

Gradients.	Miles.
Level.....	13.384
Level to ten feet.....	10.360
10 to 20 feet.....	5.834
20 to 30 feet.....	19.489
35 feet.....	5.720
	54.787
Alignment.	Miles.
Straight line.....	36.218
Curve radius 1,910 feet.....	4.726
" " 2,000 " to 5,000.....	6.651
" " 5,000 " to 12,000.....	7.192
	54.787

Length of curved line.....miles, 18.569  
or 34 per cent. of the whole; but nearly one-half of this has radii exceeding 5,000 feet and practically is almost equivalent to a straight line.

The location having been decided on to the point before indicated, an important and interesting question arises in regard to the route to be pursued for the remaining distance. Two parties are now, and for sometime past have been in the field, making experimental surveys with a view to the elucidation of this matter, but as yet I am unable to present any accurate data on which to base a decision. The examinations already made have convinced me that there are only two passes for a railroad through the Highland ridge, viz: at Hillsdale in Columbia county, or by the "Deep Hollow," in Dutchess county. By the pass first mentioned all former surveys have been made, and we know that in that direction a favorable route may be obtained. After leaving the town of Dover it will pass through or near Amenia into the valley of the Oblong, which it follows to the summit, and thence descends by the waters of the Ancram creek and Kline Kill to Kinderhook creek, near which a junction may be made with the Albany and West Stockbridge railroad, or an independent line may be carried through to Albany.

The route by Deep Hollow diverges from the other six miles above Dover plains, and passing through Pine plains pursues the valley of Claverack creek to a point about three miles from the city of Hudson, whence northerly it would be located near the margin of the river. No survey of this line has yet been made, except through Deep Hollow, where some levels, to ascertain the height of the summit, have been taken, and therefore I can express no opinion as to its merits at this time. The main difficulty seems to lie in the expensive character of the grading for a few miles through Deep Hol-

low; but it is contended by the friends of the route that this would be more than compensated by the saving of distance which will be effected.

I shall make such examinations and investigations in regard to this question as will enable me at an early day to lay the facts before the board. I am clearly of the opinion that if a line equal to the other can be had upon this route, it ought to be adopted, because it will pass through a richer and more populous district—afford to the public a greater degree of accommodation and increase the profits of the road.

Surveys have been made to ascertain the practicability of a junction with the Albany and West Stockbridge railroad. This road for a distance of more than 20 miles from Albany, pursues a southerly course before taking its easterly direction. For 17 miles its highest gradient is 35 feet per mile. A junction at this point will give the most direct line, while it will have the advantage of preserving a maximum gradient throughout of 35 feet.

The Albany and West Stockbridge road is well built, and graded for a double track, though only one line of rails is laid. Should it be decided to effect a junction with this road, and a satisfactory arrangement be made between the two companies, an additional track may be laid down in a short time, on a road already well consolidated.

The plan of the road now in process of construction through Westchester county, is as follows: To be graded for a single track with 25 feet width, in excavations, and 16 feet at top of embankments. The superstructure is to be laid on a foundation of gravel, and to consist of longitudinal sills, with cross sleepers six inches thick, and having bearing surfaces of six inches laid 2 1/2 feet apart from centre to centre, to be surmounted by an iron rail weighing 60 lbs. per yard. This will insure a substantial and permanent track over which passenger trains may be transported at high speed.

The present liabilities of the company, on account of the extension, are as follows:

Grading, masonry, and bridging.....	\$175,000
Timber for superstructure.....	29,000
2500 tons iron rails ordered, estimated to cost, delivered in New York.....	220,000
Right of way and fencing.....	58,000
	\$482,000

The whole amount of excavation on the 26 miles now under contract is 665,000 cubic yards. Of this, 255,341 cubic yards were completed on the first of January; and at this date more than one-half of the grading is finished.

The masonry of the Bronx bridge is also ready for the superstructure, and several small culverts have been built; but the bulk of the masonry must remain until the spring, for the reasons before stated.

The force employed through the winter has been from 500 to 600 men: this will be considerably augmented on the opening of spring. The contractors having been promptly paid by the company every month, according to the terms of the contracts, have manifested equal promptitude in settling with la-



borers and others employed, so that good order and quiet has been maintained upon the line.

It is cause for congratulation to the company that the right of way through Westchester county has all been obtained, so that we are now able to prosecute the work without hindrance or delay. Out of 97 farms passed through, but 11 cases were submitted to a jury—the remaining number having been amicably settled between the land-holders and commissioner of the road, to which officer the company is indebted for a result in every way so desirable.

We have now passed through a country which, from its proximity to the city of New York and the Hudson river, has rendered this item of right of way a very expensive one. We have reached a point where the road is welcomed as a blessing; and through the remaining distance liberal concessions may be anticipated from the inhabitants.

In the absence, as yet, of accurate information on which to predicate an estimate of the whole road, I would state that the cost of the road, as far as located, including right of way and fencing, will be \$21,000 per mile; and making allowance for the more expensive character of the line on the upper part of the road, and including the necessary depot building at the way stations, I feel assured that the sum of \$25,000 per mile will cover the cost of the whole road. The extensive buildings which will be required at the termini of the road will form an additional charge.

The work yet remaining between the north line of Westchester county and the city of Albany, or some point of junction on the Western railroad, is comparatively so light and easy, being free from tunnels, deep cuttings in rock, high embankments and bridges, that I feel the fullest confidence in stating that with an active prosecution of the work, a continuous line may be opened between New York and Albany in the fall of 1847.

The favorable character of this line in regard to curves and gradients, leaves no room to doubt that, with a well constructed road a high rate of speed may be accomplished.—The daily experience on the Norwich and Worcester railroad, which is inferior as regards curves and on the Long Island railroad, which has a maximum grade of 40 feet per mile, fully warrant the assertion that passenger trains which shall only stop to take in wood and water may be transported from New York to Albany in five hours, or at the rate of 30 miles per hour.

It is unnecessary at this day to urge the importance of prosecuting this road to completion. The whole field has been travelled over so often that it would be but a reiteration of former arguments. A communication from the city of New York to the capital of the state at all seasons is imperatively demanded by the travelling public throughout the Union; its completion on this route is called for by a large and populous district of the state, which without this avenue will remain secluded and shut out from market, while its productiveness on capital invested may be regarded at this time as a matter beyond ques-

tion. I have the honor to be, very respectfully, your obedient servant.

ALLAN CAMPBELL, Engineer.

Jan. 26, 1845.

*Pennsylvania Legislature—New York and Erie Railroad.*—In the lower house, on Saturday 7th, the bill granting the right of way to the New York and Erie railroad through Pike county, in this state, was taken up by yeas 54, to nays 31—and passed through committee.

We trust it will find equal favor in all its stages—and we should like to see equal liberality in relation to another great work, asking permission to pass over Pennsylvania soil—*Pennsylvanians*, more than any other people will be benefitted by every work of the kind that touches her territory. Let other people spend their money in developing Pennsylvania resources if they will—the money once invested cannot be carried away again except in the way of dividends, while the improvements made by its expenditure, are *permanent*, and should be sought rather than repelled.

*Navigation at Pittsburg.*—All our rivers, says the Pittsburgh Gazette of the 6th, are in fine navigable order.

The Monongahela improvement is in an excellent condition also, and boats arrive and depart daily.

*Virginia Wisdom.*—The bill to incorporate the Potomac and Ohio railroad company, or in other words, to grant the right of way to the Baltimore and Ohio railroad company, has been indefinitely postponed by a vote of 77 to 48.

And for this act many a man will yet sit upon the stool of repentance, unless the application shall be granted in some other way.

In the senate, on the same day, the bill to incorporate the Richmond and Ohio railroad company was passed, as it came from the house, and is a law.

*Railroad Accident.*—The Augusta Chronicle says that, "The Georgia railroad has been the theatre of another serious accident—the second within a few days. As the downward train was on its way on Wednesday night, when within a few miles of Crawfordsville, the passenger and baggage cars were suddenly thrown from the track, down an embankment of some 3 or 4 feet, by which the former was very much broken, injuring, more or less, almost every passenger on board, one of whom, Mrs. Duncan, the wife of the Rev. Mr. Duncan, was said to be very seriously if not fatally. The other passengers escaped with some pretty severe bruises and cuts, though none were very serious. What caused this accident we have not been able to ascertain, though we learn that it was probably caused by the breaking of the "body bolt" of the baggage car."

We do not copy the accidents on railroads because we desire to give them greater publicity, but for the purpose of reminding the managers of railroads generally, that the *safety* of their passengers demands their untiring vigilance, and to say that every car should undergo a thorough examination *daily*, and constantly. The amount of travel, and consequently the income of a railroad will be materially affected by the confidence of the community in the vigilant care of those in charge.

Every man interested in, or connected with railroads should bring *mind* to bear upon the adoption of measures to promote the safety of travellers.

*Making Railroad Iron in Trenton.*—The State Gazette mentions that Mr. Cooper is fitting up his extensive iron works at Trenton for the purpose of rolling rails. Iron foundries and machinists are all busily employed in getting the requisite machinery ready, and the mill will be in operation by the first of May. A contract has already been made with the Camden and Amboy company for 2,000 tons, and propositions have been made from other companies. It is expected that the works will produce thirty tons

daily—which will require daily 40 tons of pig-iron and 45 of coal, which added to the 10 or 15 tons of merchant iron which the works now produce, will make more than 100 tons per day, which must be brought to the place. About 100 additional hands will be employed.

We are well pleased to find the above notice in the papers. We are sure that the quantity specified will be exceeded rather than diminished, in the hands of the gentleman named, we never knew him to fall short of his promises.

*Central, Vt. Railroad.*—We understand that at the recent meeting of the directors in Boston, the engineer reported in favor of the Northfield route, which report was sustained by the directors. The board was equally divided—the president, governor Paine, deciding the question by the casting vote.

The work on the road in this town goes ahead briskly. A steam shovel will soon be in operation which according to all accounts will walk right through a sand bank.—*Windsor Journal*.

*Products of Berkshire.*—The Pittsfield Sun states that during the year 1845, there were sent from the depot of the Western railroad, in that town 25,704 bushels, equal to 1,285 tons of lime; 477 tons of marble; and 618 of cheese. Of the cheese 328 tons were sent to New York, and 290 tons to Boston.

*New York and Boston Direct Railroad.*—A New Haven paper of Saturday last, 7th inst., says that—"Some gentleman from Middletown, with an engineer, were in this city a day or two since, making investigations and consulting on the subject of a new and very feasible railroad route from New Haven through to Boston via Middletown. The route would be direct from this city to Connecticut river, from thence through Windham county near Pomfret to Rhode Island, and then onward across an extensive section of country now out of reach of railroads in almost an air line to Boston.

"In connection with the road now contemplated between New York and this city, this route would be almost in a straight line, and furnish an inland route at least 30 miles shorter than any other now in operation between these two great cities. The people of Middletown are earnestly engaged in their section of the enterprise, and that the Bostonians will attend to their portion of the route, no one will question."

We have been aware for some time past that an engineer has been making examinations of the country between Middletown and Boston with a view to ascertain the general features of the line, and we have understood from a source not apt to be far out of the way, in such matters, that a railroad may be constructed on that route which will be of the most favorable character in its grades and curves; and at the same time shorter, by more than twenty miles, than any other route between the two cities. Of course it should be denominated the "New York and Boston Direct railroad"—when completed, after the modern fashion in England, when getting up what are deemed by some as *rival* lines.

The writer says truly when he says "the Bostonians will attend to their portion of the route;" and we should not be surprised if the citizens of Middletown were to bring this matter before the people on the line east of Connecticut river, and in Boston, in a light so forcible that they will make an effort to carry it through. It will be seen by laying a rule on the map that a road from Boston, through Uxbridge, Mass., a corner of Rhode Island, Pomfret and Middletown, to Wallingford in Connecticut, on the New Haven and Hartford railroad, will be very nearly straight—then a little deviation to New Haven, and thence to New York will not exceed probably 226 miles. The route from Middletown to Boston will intermediate, between the Stonington and Providence roads on the one hand, and the New Haven and Springfield, and the Western and Worcester roads on the other.



**PATENT HAMMERED RAILROAD, SHIP and Boat Spikes.** The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. JOHN F. WINSLOW, Agent.

Albany Iron and Nail Works, Troy, N. Y.  
The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co. Boston. ja45

**PATENT RAILROAD, SHIP AND BOAT Spikes.** The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York, will be punctually attended to.

HENRY BURDEN, Agent.

Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 223 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

•• Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand. ja45

## FRENCH AND BAIRD'S PATENT SPARK ARRESTER.

**TO THOSE INTERESTED IN** Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

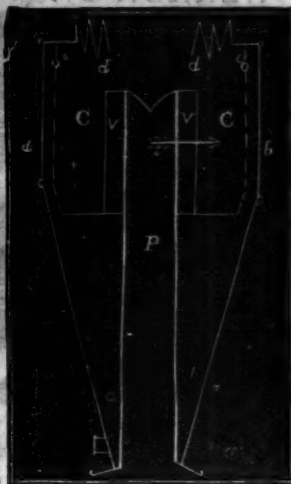
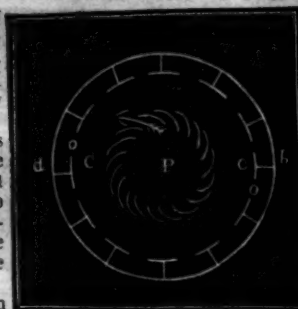
These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

E. A. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendent Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendent Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich.; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, or to Messrs. Baldwin & Whitney, of this city, will be promptly executed.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

•• The letters in the figures refer to the article given in the Journal of June, 1844. ja45

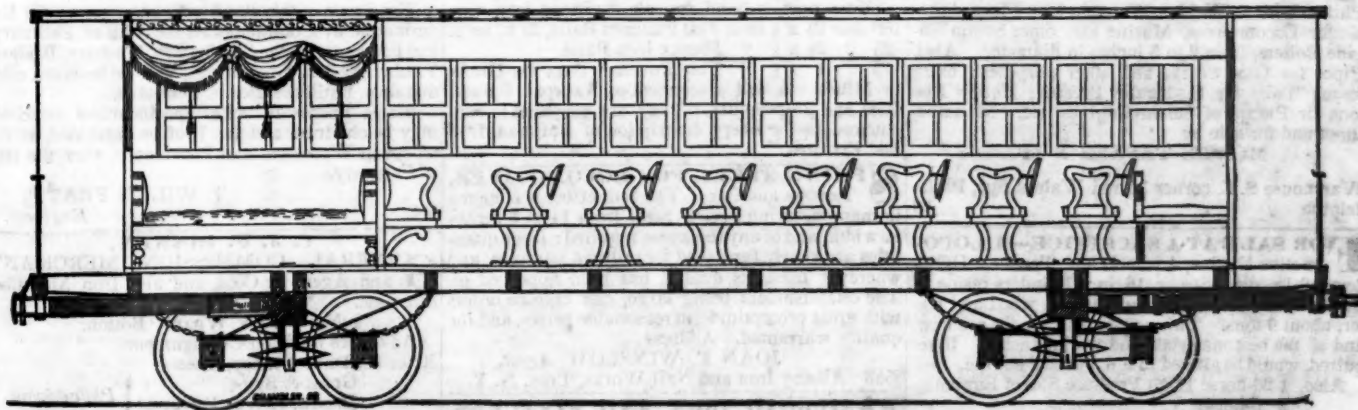


**BENTLEY'S PATENT TUBULAR STEAM BOILER.** The above named Boiler is similar in principle to the Locomotive boilers in use on our Railroads. This particular method was invented by Charles W. Bentley, of Baltimore, Md., who has obtained a patent for the same from the Patent Office of the United States, under date of September 1st, 1843—and they are now already in successful operation in several of our larger Hotels and Public Institutions, Colleges, Alms Houses, Hospitals and Prisons, for cooking, washing, etc.; for Bath houses, Hatters, Silk, Cotton and Woollen Dyers, Morocco dressers, Soap boilers, Tallow chandlers, Pork butchers, Glue makers, Sugar refiners, Farmers, Distillers, Cotton and Woollen mills, Warming Buildings, and for Propelling Power, etc., etc.; and thus far have given the most entire satisfaction, may be had of D. K. MINOR, 23 Chambers st. New York.

The article is complete in itself; occupies but little space, is perfectly portable, and requires no brick work, not even to stand upon. It is valuable not only in the saving of time and labor, but in the economy of fuel, as it has been ascertained by accurate measurement, that the saving in that article is fully two-thirds over other methods heretofore in use. They are now for the first time introduced into New York and Boston by the subscriber, who has the exclusive right for the New England states, New York and New Jersey, and are manufactured by

CURTIS & RANDALL, Boston; and by  
FORCE, GREEN & CO. New York.

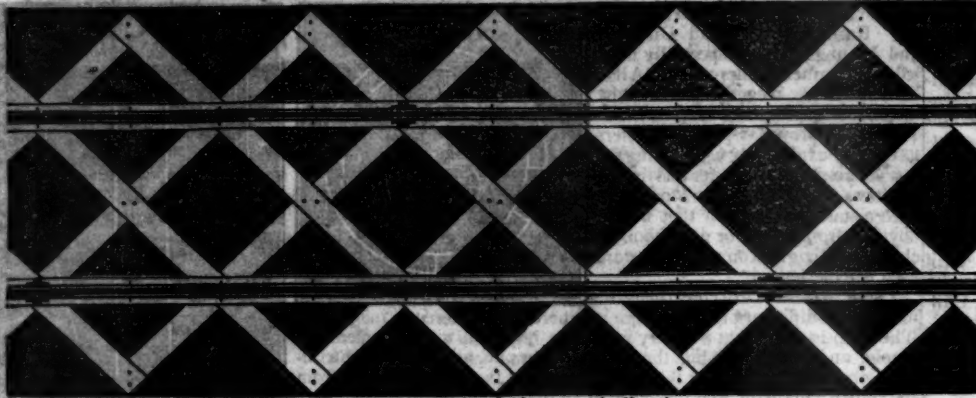
## DAVENPORT & BRIDGES' CAR WORKS.



DAVENPORT & BRIDGES CONTINUE TO MANUFACTURE TO ORDER, AT THEIR WORKS, IN CAMBRIDGEPORT, MASS. Passenger and Freight Cars of every description, and of the most improved pattern. They also furnish Snow Ploughs and Chilled Wheels of any pattern, and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices. All order punctually executed and forwarded to any part of the country. Our Works are within fifteen minutes ride from State street, Boston—coaches pass every fifteen minutes.



## HERRON'S PATENT AMERICAN RAILWAY TRACK,



As seen stripped of the top ballasting

**HERRON'S IMPROVEMENTS IN RAILWAY SUPERSTRUCTURE** effect a large aggregate saving in the working expenses, and maintenance of railways, compared with the best tracks in use. This saving is effected—1st, Directly by the amount of the increased load that will be hauled by a locomotive, owing to the superior evenness of surface, of line and of joint. This gain alone may amount to 20 per cent. on the usual load of an engine.—2d, In consequence of the thorough combination, bracing, and large bearing surface of this track, it will be maintained in a better condition than any other track in use, at about one-third the expense.—3d, As action and reaction are equal, a corresponding saving of about two-thirds will be effected in the wear and tear of the engines and cars, by the even surface and elastic structure of the track.—4th, The great security to life, and less liability to accident or damage, should the engine or cars be thrown off the rails.—5th, The absence of jar and vibration, that shake down retaining walls, embankments and bridges.—6th, The great advantage of the high speed that may be safely attained, with ease of motion, reduction of noise, and consequently increased comfort to the traveller.—7th, The really permanent and perfect character of the Way, insuring regularity of transit. To which may be added the great increase of travel, that would be induced by the foregoing qualities to augment the revenue of the railroad.

The cost of the Patent track will depend on the quantity and cost of iron and other materials; but it will not exceed, even including the preservation of the timber, the average cost of the tracks on our principal railroads. Generally, the timber structure, fastenings and workmanship, exclusive of the cost of the iron rails, will be from \$2,300 to \$4,000 per mile. On this structure, rails of from 40 to 50 lbs. per yard, will be equal in effect to

60 and 70 lbs. rails laid in the usual way. The proprietors of a road, furnishing approved materials in the first instance, the undersigned will construct the track on his plan in the most perfect manner, with recent improvements, for one thousand dollars per mile. And he will farther contract to maintain said track for the period of ten years, furnishing such preserved timber and iron fastenings as may be required, and keeping said track in perfect adjustment, under any trade not exceeding 100,000 tons per annum, or its equivalent in passenger transportation, for Two hundred dollars per mile per annum.\* To insure the faithful performance of this contract, he will pledge one-fourth of the cost of construction, with the accruing interest thereon, regularly vested, until the completion of the contract. So that a company, by securing payment to the undersigned at the specified period, will have only \$750 per mile to pay for the workmanship on the track, without any charge being made for the use of the patent, the subsequent payments, for maintenance of way, and amount withheld, being made from the large margin of profits that will result from its use.

JAMES HERRON.  
Civil Engineer and Patentee.

No. 277 South Tenth St., Philadelphia.

\* A general average of the repairs done on six of the most successful railroads in this country, for a period of from six to eight years' use has been found to exceed \$625 per mile per annum, exclusive of renewal of rails. But few roads in this country carry as much as 100,000 tons per annum. When a road exceeds that quantity, the repairs due to the additional tonnage, up to 200,000 tons, will be charged at one mill per ton; over the latter, and not exceeding 300,000 tons, nine-tenths of a mill, etc. Where there are two tracks to maintain, a large reduction upon those rates will be made.

**W. R. CASEY, CIVIL ENGINEER, NO. 23 Chambers street, New York, will make survey estimates of cost and reports for railways, canals, roads, docks, wharves, dams and bridges of every description. He will also act as agent for the sale of machinery, and of patent rights for improvements to public works.**

**TO LOCOMOTIVE AND MARINE ENGINE BOILER BUILDERS.** Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; Hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by

MORRIS TASKER & MORRIS,

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**FOR SALE AT A SACRIFICE—A LOCOMOTIVE ENGINE, 4 wheels and Tender.** Cylinders 10 in. dia., Stroke 16 in., Cylinders inside of square box. Weight of engine, with wood and water, about 9 tons. This engine and tender are new, and of the best materials and workmanship. If required, would be altered to a 6 wheeled engine.

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